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Annual report of the

PROCEEDINGS

(70)

OF THE

FORTY-FIFTH ANNUAL CONVENTION

OF THE

ONTARIO EDUCATIONAL ASSOCIATION

HELD IN

TORONTO

ON THE 17TH, 18TH AND 19TH APRIL, 1906



TORONTO

WILLIAM BRIGGS

1906

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OF THE

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1906-07

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PAST PRESIDENTS
OF THE
Ontario Educational Association.

CONTENTS

	PAGE
Minutes of the General Association	7
" " College and High School Department	23
" " High School Principals' Section	29
" " Modern Language Section	30
" " Natural Science Section	31
" " Classical Section	34
" " Mathematical and Physical Section	37
" " Historical Section	39—
" " Commercial Section	42
" " Public School Department	44
" " Kindergarten Department	56
" " Training Department	58
" " Inspectors' Department	60
" " Trustees' Department	62
" " Home Science Section	71
" " Manual Arts Section	72
" " Hygiene Section	75
Financial Statement	77
GENERAL ASSOCIATION—	
President's Address. John B. Dow, LL.B., Whitchurch	78
Address of Hon. R. A. Pyne, Minister of Education	88
Natural History and Nature Study. James Fletcher, LL.D., Ottawa	104
Abstract of Lecture on Teaching Geology in the Schools. A. P. Coleman, Toronto	120
COLLEGE AND HIGH SCHOOL DEPARTMENT—	
On the Training of Teachers for Secondary Schools. R. A. Thompson, B.A., Hamilton	123
MODERN LANGUAGE SECTION—	
The Decline of Tragedy in Modern Drama. J. E. Middleton, Toronto	136
Teaching of Literature in the Lower School. Miss Maud M. Hawkins, Weston	148
High School Texts in French and German. E. S. Hogarth, B.A., Hamilton	156
Some By-Products of Modern Language Teaching. J. S. Lane, B.A., Chatham	163
The Effect of the New Regulations on French and German in the High Schools. G. L. Macdonald, B.A., Ingersoll	171
NATURAL SCIENCE SECTION—	
History and Teaching in Chemistry. W. L. Goodwin, Kingston	173
Some Aspects of the Study of Biology. J. B. Turner, B.A., Hamilton	191
Discussion on Teaching of Elementary Science. T. J. Ivey, M.A., Toronto	200
Educational Values. R. Lees, M.A., St. Thomas	207
CLASSICAL SECTION—	
Some Peculiarities of Cicero's Diction as Illustrated in the "Pro Lege Manilia" and the "Pro Marcello." J. Fletcher	217
MATHEMATICAL AND PHYSICAL SECTION—	
Mathematics in the Secondary Schools of Great Britain, Germany and the United States. R. W. Hedley, B.A	226

	PAGE
MATHEMATICAL AND PHYSICAL SECTION—<i>Cont'd.</i>	
A Discussion on the Effects of the Recent Changes in Geometry, on the Progress of the Theoretical Work of the Lower School (Form II.). J. D. Dickson, B.A., Niagara Falls.....	237
COMMERCIAL SECTION—	
Auditing. W. A. Douglas, B.A., Toronto	245
Education as Affected by Our Social Conditions. W. A. Douglas, B.A., Toronto	250
PUBLIC SCHOOL DEPARTMENT—	
Secretary's Report. R. A. Ward, Toronto	156
How Best May the Public School Department of the O.E.A. and the Local Associations Co-Operate in their Work. Chas. G. Fraser, Toronto	260
Men or Women Teachers. Miss Agnes C. Purvts, Brantford	264
How the World of Nature Outside of Us May Be Made to Build Up a World of Mind Within Us. Prof. E. M. Keirstadt, LL.B., Toronto	272
Report of Joint Committee <i>Re</i> Organization of Teachers. Chas. G. Fraser, Toronto	280
TRAINING DEPARTMENT—	
The Function of the Educator in the Making of the Nation. T. B. Kilpatrick, LL.D.....	281
Physical Training, Its Value and Necessity. W. E. Groves, Toronto	285
Psychology of Spelling. T. A. Reid, Owen Sound	296
INSPECTORS' DEPARTMENT—	
The Best Method of Inspecting Rural Schools. John Dearness, M.A., London	305
The Importance of Continuation Classes in Rural Education. R. H. Cowley, B.A., Ottawa.....	310
Initial Nature Study in Public Schools. Wm. Scott, B.A., Toronto.	314
TRUSTEES' DEPARTMENT—	
President's Address. A. Werner, Elmira.....	323
Teachers' Contracts. G. A. Aylsworth, Newburgh.....	329
Citizen-Making the Mission of the School. J. G. Elliott, Kingston	331
The Condition of Rural Schools and How to Improve Them. Rev. W. H. G. Colles, Chatham.....	338
Rural Schools and How to Improve Them. John H. Laughton, Parkhill.....	353
Continued Education by Means of Free Libraries and Kindred Institutions. L. K. Murton, Oshawa.....	358
Results of the Consolidated School. C. W. Kelly, Guelph	373
HOME SCIENCE SECTION—	
Results of Some Recent Investigations with Breakfast Foods Prof. R. Harcourt, Guelph	376
The Literature of Dietetics. Miss J. A. Doan, Toronto.....	382
HYGIENE SECTION—	
The Training of Teachers in Hygiene. H. T. Campbell, M.D., London	390
Causes of Absence in Toronto Schools During March. John F. Goodchild, M.D., Toronto.....	393
Overwork in Schools. Edward Ryan, M.D., Kingston	399
MANUAL ARTS SECTION—	
The Essential Principles of Home Furnishing. W. L. Richardson, Toronto	403
Manual Training—Its Uses. W. Scott, B.A., Toronto	415
Preliminary Constructive Work. Miss Alice A. Harding, Toronto..	424
Natural Methods in Teaching Music and the Value and Relation of Song to Education. Miss Alice A. Harding, Toronto	431
List of Members	437

PROCEEDINGS
OF THE
FORTY-FIFTH ANNUAL CONVENTION
OF THE
ONTARIO EDUCATIONAL ASSOCIATION.

MINUTES OF THE GENERAL ASSOCIATION.

TUESDAY, April 17th, 1906.

The Association met in the West Hall of the University of Toronto at 8 p.m., the President, John Ball Dow, LL.B., in the chair.

Rev. I Lovell, D.D., opened the meeting by reading a portion of Scripture and by leading in prayer.

Moved by Mr. Wm. Scott, seconded by Mr. S. McAllister, that the Minutes of the last meeting having been printed and distributed they be taken as read, and that they be now confirmed. Carried.

Communications were read from:

1. Mr. W. H. Johnston, of Kippen, Ont., containing copies of resolutions passed by the West Huron Teachers' Institute. This letter was referred to the Committee in charge of the resolutions to be discussed on Monday afternoon.

2. Mr. Frank Cornell, asking that the Ontario Educational Association take some steps to mark their appreciation of Mr. Alexander Muir, author of "The Maple Leaf Forever." This letter was referred to the new Board of Directors.

President Dow addressed the Association on: The Educational Outlook. (Page 78.)

Hon. R. A. Pyne, Minister of Education, addressed the Association on some of the leading educational questions of the day and explained the chief features of the new School Bills. (Page 88.)

Dr. James Fletcher addressed the Association on "Natural History and Nature Study."

A report from the Board of Directors was read, recommending that the Constitution be amended by inserting in Article III, Section 1, "Seventy-five" cents instead of "Fifty cents," and that this be taken as a notice of motion.

The Public School Section of the O. E. A. requested that the report of the joint committee on the question of the organization of a Union of Teachers of Ontario be considered on Wednesday evening by the General Association.

The meeting adjourned at 11 p.m.

WEDNESDAY, April 18th, 1906.

The session opened at 8 p.m. in the West Hall, President Dow in the chair.

Professor A. P. Coleman, Ph.D., addressed the Association on "The Teaching of Geology in the Schools."

President Dow thanked Professor Coleman for his address.

Dr. Burwash presented the following report on the Bible in the Schools:

It has been thought best by those taking part in the conferences held on the subject of Biblical instruction in the Public Schools that a short statement of what has been thus far accomplished be sent to those interested.

The first conference was held on the 24th of December, 1904. There were present representatives of the Presbyterian, Methodist and Anglican churches. At this conference the syllabus of Bible lessons and passages for memorizing, previously presented to the various Anglican Synods of the Province of Ontario was presented and discussed. The sense of the Conference was decidedly in favor of systematic instruction in the Public Schools.

The following resolutions were unanimously passed:

1. Moved by Dr. Hoyles, seconded by Dr. Potts, "that this Conference heartily approves of the use of a syllabus of Bible readings in our Public Schools, and also of the selection of passages to be memorized by pupils during school hours, and refers it to a committee consisting of the Rev. Dr. Miller, Chancellor Burwash, and Principal Gordon to recommend such a syllabus and selection and to report the same at a future meeting with a

view to having united action taken by all the churches in regard to this important matter."

2. Moved by Mr. John Millar, seconded by Canon Welch, "that this Conference appoint a committee to meet a committee of the Ontario Educational Association to consider the proposal of having so far as practicable some systematic instruction in Bible literature in our Public and High Schools."

On motion the following were appointed as such committee: Principal Gordon, Dr. Potts, Provost Macklem.

As the Ontario Educational Association did not meet until Easter week of 1905, nothing could be done until it had appointed its committee, and it was not until 23rd December, 1905, that the second meeting of the Conference was held. By that time the Congregational church had appointed delegates to join the Conference. This second meeting was interfered with by the Conference on Church Union then in session. But delegates from the Ontario Teachers' Association were present. The committee on the syllabus presented a report which was discussed.

This report recommended that the selection of Scripture Readings authorized by the Department of Education for use in the schools be taken as the basis for systematic instruction. It presented as a suitable series of lessons for one school year those passages in the Authorized Scripture Readings on the Life of Christ, and suggested two verses of Scripture, taken from the Psalms, from Isaiah, and from St. Matthew, for memorizing at each lesson.

It was decided to appoint a committee to confer still further with that of the Ontario Educational Association, and to call another meeting of the Conference as early in 1906 as possible. The committee appointed for this purpose was composed of the Rev. Dr. Miller, Chancellor Burwash and Mr. Hamilton Cassels, K.C.

A meeting of this committee with that of the Ontario Educational Association was held on the 27th of January, 1906. It was unanimously agreed that regular systematic instruction in the Bible is desirable, and the committee of the Ontario Educational Association agreed to present the following resolution in their report to that Association which will be held in Easter week of this year:

"That in the regulations for Supplementary Readings in Literature in the Public and High Schools of the Province (*vide* pp. 62 and 66 of the Regulations of 1904) provision be made for instruction in Bible knowledge, and for the memorizing of suitable passages of Scripture, and that, wherever possible, at least two lesson periods a week be set apart for such instruction; and further that a syllabus of lessons be prepared, suitable for the different grades of Public and High School pupils."

The report was adopted.

Dr. Burwash presented the following report from the Superannuation Fund Committee:

TEACHERS' PENSION FUND OF THE PROVINCE OF ONTARIO.

I. *The Pension.*

1. Contributors to the Teachers' Pension Fund of the Province of Ontario may retire and become beneficiaries and shall receive a pension as follows:

(a) Male beneficiaries at the age of 63; or after 40 years of service, provided, however, no pension shall be granted before they have reached the age of 60, except as hereinafter provided.

(b) Female beneficiaries at the age of 60; or after 35 years of service, provided, however, no pension shall be granted before they have reached the age of 55, except as hereinafter provided.

2. Such pension shall be based on the total salary upon which the beneficiary shall have paid his contribution to the pension fund, except as hereinafter provided.

(a) The annual pension granted at the age of 55 shall be one and three-quarters per cent. of the total salary upon which the beneficiary shall have paid his contribution to the pension fund, but in no case shall the annual pension exceed seventy per cent. of the average yearly salary; or, in other words, forty is the greatest number of years' service upon which pensions will be based.

(b) Should any beneficiary's years of service exceed forty, his contribution shall continue each year of service and his pension shall be calculated on the forty years during which the salary is greatest.

(c) The pension granted to male beneficiaries prior to the age of 65, shall be as follows:

At 60.....	One and one-eighth per cent. of the total salaries.
At 61.....	One and two-eighths " " "
At 62.....	One and three-eighths " " "
At 63.....	One and four-eighths " " "
At 64.....	One and five-eighths " " "

The pension granted to female beneficiaries shall be as follows:

At 55.....	One per cent.
At 56.....	One and one-fortieth per cent.
At 57.....	One and two-fortieths "
At 58.....	One and three-fortieths "
At 59.....	One and four-fortieths "
At 60.....	One and five-fortieths "

(c) Should female beneficiaries have continued in service after the age of 60, the pension shall be as follows:

At 61.....	One and two-eighths per cent. of salary.
At 62.....	One and three-eighths " "
At 63.....	One and four-eighths " "
At 64.....	One and five-eighths " "
At 65.....	One and six-eighths " "

3. Pensions shall be paid half-yearly.

4. Pensions shall be apportionable.

5. Pensions shall be non-assignable *inter-viros*, and shall be exempt from seizure under execution, attachment, garnishment, or alienation, under any legal process for the recovery of debts.

By "Years of Service" is meant, years during which contributions are paid into the fund and the contributors are actively engaged in the work of education, as inspectors or teachers in Public, Separate, High or Training Schools in the Province of Ontario, and only completed years are to be considered in estimating pensions.

II. Additional Benefits.

1. If after six years' service, any contributor shall withdraw from work, as Inspector or Teacher in Public, Separate, High or Training Schools, in the Province of Ontario, one-half of the total contributions of such person shall be returned without in-

terest, but contributors who retire, before the end of six years' service, shall not be entitled to any refund.

2. If any contributor shall die before entering upon a pension, the total contributions paid by such contributor shall be returned without interest, as he may have directed by will or otherwise, in accordance with sub-sections 159 and 160 of "The Ontario Insurance Act."

3. If a contributor retire, owing to enfeebled health, before reaching the age of 55, the infirmities of such contributor shall be established by a certificate from the physician who has attended such person, and from one physician selected by the Committee of Administration of the Pension Fund; and if such contributor shall have taught twelve or more years, he shall receive an annual pension of one per cent. of the total salary upon which he has paid his contributions; and in case the retirement takes place between the ages of 55 and 60, he shall receive a pension in accordance with the scale given in Section I., Section 2 (d). But if such contributor shall have taught less than twelve years, he shall receive his total payments to the fund, but without interest.

Should it appear to the Committee of Administration that any male beneficiary less than 55 is capable of resuming his or her work, the pension may in the meantime be withdrawn.

4. If a beneficiary die, after entering on his pension, and before receiving by way of pension, as large a sum as he has contributed to the fund, the balance of such contributions shall be paid, without interest, as the beneficiary shall direct, by will or otherwise, in accordance with sub-sections 159 and 160 of "The Ontario Insurance Act."

III. *Contributors.*

1. All Inspectors and Teachers of Public, Separate, High and Training Schools of the Province of Ontario, who enter the teaching profession on or after July 1st, 1905, shall be contributors to the Pension Fund.

2. Those who have entered the teaching profession prior to July, 1906, may become contributors to the fund and beneficiaries thereof on the same conditions as the other beneficiaries under Section I., preceding, provided that they become contributors within two years after the establishment of the fund. Such

persons may also have the privilege of dating back their entrance into the fund as contributors, by a number of years not exceeding ten, on paying such an additional sum as may be deemed equitable in each and every individual case, by a competent actuary.

3. The Government of the Province of Ontario shall contribute the fund.

IV. Rates of Contributions.

1. Beneficiaries receiving a salary at the rate of \$700 per annum or less shall contribute three per cent. of their salaries; beneficiaries receiving from \$700 to \$1,000 shall contribute three and a half per cent., and above \$1,000, four per cent. Until further notice, no contributor shall pay on more than \$1,500 salary or receive the corresponding pension on a basis of more than \$1,500.

2. The Provincial Government of Ontario shall contribute annually one and one-half per cent. of the total salaries paid to all Inspectors and Teachers of the Province.

V. Method of Collecting Contributions.

The contributions to the fund shall be deducted by the Provincial Treasurer from the Legislative Grant made to the various bodies who employ the contributors to this fund.

VI. Defrayment of Expenses.

All expenses in connection with the management of the fund shall be borne by the Provincial Government.

VII. The Fund.

1. The fund shall be held by the Provincial Treasurer in trust, and compound interest at the rate of four per cent. per annum, payable half-yearly, shall be allowed on all moneys belonging to the fund.

2. The fund shall be valued every five years by a competent actuary, appointed by the Government.

3. A statement of the fund shall be published annually in the Report of the Minister of Education.

VIII. *Committee of Administration.*

1. There shall be a Committee of Administration, consisting of seven members appointed by the Provincial Government, of whom four shall be appointed from the contributors.

2. Two members of the Committee of Administration shall retire each year but shall be eligible for reappointment.

3. The duties of the Committee of Administration shall be to decide on all matters connected with the administration of the fund in accordance with the provisions of this Act.

The report was received.

Moved by Mr. Wm. Scott, seconded by Mr. W. S. Ellis, that this Association expresses approval of what the Committee on Superannuation has done and that the matter be referred again to the Committee with additional members to be added by the Board of Directors. This Committee to take the full scheme into its consideration, make the best terms it can with the Government, and take the final action necessary.

Present members—Chancellor Burwash, 1; Prof. Dyde; J. Russell Stuart, 2; Dr. Seath; J. H. Putman, 3; Principal Embree, 4; Mr. R. A. Gray, 5; Principal Scott, 6; Prof. R. A. Mackenzie; L. K. Murton, 7; S. Acheson, 8; W. S. Ellis, 9; W. H. Bolland, 10; David Young, 11. Carried.

Names added to the Board of Directors, Messrs. J. Bennett, Jno. Ball, Dow, and G. K. Powell.

Moved by Dr. Burwash, seconded by Dr. Knight, that the railway fare of the members of the Committee on Superannuation be in future paid from the funds of the Association. Carried.

Moved by Mr. J. Dearnness, seconded by Mr. C. A. Mayberry, that the Secretary be instructed to communicate to the General Passenger Agents issuing standard certificates to the members of this Association its thanks for granting these members reduced fares and also its opinion that the method of viseing the standard certificates this year is ill-suited to the conditions of a large convention and more expensive than seems necessary. The Association further expresses the hope that the officers of the said railways will in the near future devise a method of viseing which will be mutually satisfactory. Carried.

The Secretary read the following report submitted by Principal Auden:

Report of the Committee on the extension of the Free Entry List in Educational matters.

On Wednesday, April 26th, 1905, the Ontario Educational Association appointed a Committee composed of President Loudon, Professor Macallum, Professor Galbraith, Professor Milner, Principal Auden, Principal Embree, and Principal Merchant, to press on the Dominion Government the advisability of extending the free entry list in educational matters.

On June 20th the Committee met; Principal Auden in the chair; the Chairman and Professor Macallum were empowered to represent the Committee before the Tariff Commission.

On Saturday, November 18th, Principal Auden and Professor Macallum appeared before the Tariff Commission and presented the subjoined proposal that the item beginning "Philosophical and Scientific Apparatus" read as follows:

"Philosophical and Scientific Apparatus, Utensils, Instruments, and Preparations, including boxes and bottles containing same;

"Maps, Photographic reproductions, Casts, Etchings, Lithographic Prints and Charts; when specially imported in good faith for the use or by order of any Society or Institution incorporated or established solely for religious, philosophical, educational, scientific or literary purposes, or for the encouragement of the fine arts, or for the use or by order of any College, Academy, School, or Seminary of learning in Canada, and not for sale, subject to such regulation as the Minister of Customs prescribes, be duty free."

At the same time they asked that a more liberal interpretation might be taken of the clause beginning "Books not printed in Canada."

Members of the Commission seemed favorably impressed with the reasonableness of the proposal.

The Committee has also carried on a great deal of correspondence with the object of interesting members of the Legislature and prominent educationists in the movement.

The report was adopted.

Dr. J. F. Goodchild presented the report on Hygiene as follows:

The committee appointed in April, 1905, by the Ontario Educational Association, met at 8 p.m., 16th February, 1906, in Principal Scott's private room, Toronto Normal School. The eight members present decided to bring under the notice of the Hon. the Minister of Education the following suggestions and requests:

1. That the Minister add to the Regulations of the Educational Department the clauses: "The teacher at the beginning of each school term shall make an examination of the eyesight and hearing for every child in his or her department, and report to the parents any child having either of these senses defective, also the teacher shall advise the parents of the necessity of sending such children to a competent medical man for examination."

"The School Board shall provide a thermometer for each school-room and the teacher shall enter in the Register twice each day the temperature of such room."

2. That the Minister shall make more adequate and extensive provision for the teaching of Hygiene in Normal Schools.

3. That the Minister request the Provincial Board of Health to prepare a series of suggestions to be placed within the cover of the School Register for the guidance of teachers in the practical part of their work in Hygiene.

4. It is recommended that inspection be made of all school children in any room from which has recently come a case of contagious disease.

The report was received.

The following was the result of the election of officers:

<i>President,</i>	-	-	William Scott, B.A.
<i>General Secretary</i>	-	-	Robert W. Doan.
<i>Treasurer,</i>	-	-	W. J. Hendry.

Dr. Pakenham moved, seconded by Mr. W. H. Stevens, that this Association hereby records its appreciation of the eminent services of Mr. John Millar, Deputy Minister of Education for Ontario, and its sincere regret that through his recent death the Province has lost the industry, the intelligence and the self-sacrifice of a great public servant, and that this Association instructs its Executive to prepare and transmit to the family of Mr. Millar an expression of its sympathy in their loss. Carried.

In accordance with a notice of motion, it was moved and seconded that the fee for registration in the General Association of the Ontario Educational Association be in future seventy-five cents, and that the Constitution be amended accordingly, said sum to include the expense of viseing railway certificates.

Mr. S. Acheson introduced the following report on the formation of a Teachers' Union:

At the 1905 meeting of the Ontario Educational Association four departments—the Public School, College and High School, Training, and Kindergarten—appointed representatives to form a joint committee to consider the question of an organized union of the teachers of Ontario.

The Committee has had several meetings, has secured as much information as it could on this subject, and, as a result, would beg to report as follows:

We recommend the formation of an Organization of the Teachers of Ontario, to be known as "The Ontario Teachers' Union."

That the objects of this Union shall be:

1. To unite the teachers of the Province of Ontario in an Association for mutual improvement and protection.
2. To provide a medium through which the Teachers of the Province may give effective expression to their collective opinions on all educational questions.
3. To provide a means whereby those who administer our educational affairs, both provincial and local, may secure information and advice based upon the experience of the associated teachers; and to further the co-operation of Trustees and Teachers in all educational interests.
4. To determine and control the qualifications for entering the teaching profession; and to endeavor, on the one hand, to inspire teachers with proper ideals and aims in their work; and, on the other hand, to form a public opinion in support of the best educational progress.
5. To secure the proper recognition of the teaching profession in all appointments to the higher positions in the educational service of the Province.
6. To secure the adoption of an equitable superannuation scheme for the Teachers of the Province.

7. To secure the compilation of a comprehensive register of the Teachers of the Province.

8. To afford advice in professional matters to individual members of the Union, and to give advice and assistance to them in legal cases of a professional nature.

9. To extend protection to any of its members who may be wrongfully treated; also, to exact from them the proper fulfilment of their professional engagements.

10. To discipline any of its members found guilty of unprofessional conduct.

The report was received.

Moved by Mr. C. G. Fraser, seconded by Mr. C. E. Kelly, that the report be adopted.

In amendment it was moved by Dr. S. B. Sinclair, seconded by Dr. F. W. Merchant, that this report be referred to the Board of Directors with a request that the subject be placed on the programme of the General Association at its next annual meeting. The amendment was carried.

The Treasurer read the Annual Financial Statement.

The Auditors presented the following report:

TORONTO, April 18th, 1906.

To the President of the Ontario Educational Association:

Sir,—We, the undersigned auditors, have the honor to report that we have carefully examined the books, orders, vouchers and financial summary of the Treasurer of the Association, and have found them correct in every particular. The balance on hand at the close of the fiscal year is \$143.90.

Your obedient servants,

John Dearness.

Wm. Linton.

The financial statement of the Treasurer and the report of the Auditors were adopted.

The Association adjourned.

THURSDAY, April 19th.

A joint meeting of all the departments and sections of the Association was held in the East Hall.

Vice-President Mr. J. Bennett took the chair at 2 o'clock p.m.

Dr. Sinclair addressed the meeting on "The Status, Qualification and Remuneration of Teachers."

Moved by S. B. Sinclair, seconded by R. A. Ward, that the report of resolutions *re* "Status, Qualification and Remuneration of Teachers," passed last year at a Union meeting of the Public School and Training Departments, as stated on pages 11 and 12 of the Proceedings of the Ontario Educational Association for 1905, be received, and that we now proceed to a consideration of the topics mentioned on this afternoon's programme, five minutes to be allowed for the introduction, and ten minutes for the immediate subsequent discussion of each topic; each speaker to be limited to three minutes. Carried.

The following resolutions were adopted:

1. That the practice of asking teachers, when applying for positions, to state salary expected, is much to be regretted, and that we strongly protest against it, and that all departments be requested to co-operate in discouraging in every way possible this very objectionable practice, and that the Committee in charge of the resolution be and is now requested to thank the newspaper managers who have complied with the request of the Association to discourage the practice above referred to.

2. That the Government of Ontario be asked to fix a minimum salary for teachers. The Chairman named Messrs. W. E. Groves, F. W. Merchant, W. Scott, and L. E. Embree a committee to prepare a resolution expressing strong approval by the Ontario Educational Association of the proposals of the Minister of Education looking towards the fixing of a minimum salary for Public School Teachers.

3. That the minimum academic and professional qualifications of teachers be materially increased.

4. (a) That the minimum qualification of a Principal of a Public School of two to five rooms inclusive, be a second-class certificate.

(b) That the minimum academic qualifications of a Principal of a Public School of six or more rooms be a senior leaving certificate.

5. That continuation class schools, Grade A, be placed upon the same basis as corresponding grades of High Schools, as regards equipment, Government aid, and teachers' qualifications, but every Principal of a continuation class to have had at least three years' experience as a Public School teacher.

6. That the Education Department be requested to permit a candidate for senior leaving, who hold a second-class certificate, and is not in attendance at a High School, but is engaged in teaching, the option of writing on any two or more subjects in one year.

7. That the Government of Ontario be asked to materially increase the annual grant to Public Schools, and that it be distributed on the following lines: (1) Teachers qualifications; (2) Percentage of average attendance; (3) Rate of assessment and taxation for Public School purposes; (4) The teacher's salary; (5) School equipment; (6) Accommodation.

8. That the Board of Directors be instructed to send a circular to every inspector requesting him to call immediately a meeting of the officers of his local association with a view to devise means of interviewing their respective members of the Legislature and pressing upon their attention the reasons for supporting the measures of the Bill, No. 216, now before the Assembly, which affects the status of the teacher.

9. "At a joint meeting of all the departments of the Ontario Educational Association—the College and High School Department, the Public School Department, the Kindergarten Department, the Training Department, the Inspectors' Department, the Trustees' Department—it was unanimously resolved,—That the Association heartily approves of the provisions made for the improvement of the educational conditions of the rural schools of the Province as set forth in section 36, of Bill 216, entitled 'An Act to Amend the Public Schools Act.'".

10. Whereas, it is desirable to impress on our Federal and Provincial Government and upon local municipalities the duty of preserving the important historical land-marks of our country as object lessons in history, whereby the present and future generation of Canadians may the more clearly realize the

struggles, the suffering, and the sacrifices by which Canada was saved to the Empire, to become a great corner-stone in its fabric;

And whereas, as examples of the early stockaded forts of this continent and as illustrations of the history of the military engineering, the old forts at Toronto and Niagara possess a high educational value apart from their interest as glorious monuments of the British and Canadian soldiers who successfully did their duty in the progress of civilization when the Motherland was the champion of the cause of freedom against the armed strength of two continents;

And whereas, in the United States, in Europe, and in the Motherland such sites are recognized as notable influences on the national life and character, and in some instances are considered as public trusts;

And whereas, the City of Toronto has definitely received from the Dominion of Canada the historic grounds of old Fort York—which were asked for in 1889 as a public historical trust and granted in 1903 by an order in Council that plainly defines them as an historical trust; or, if we may use the words of a resolution passed at a meeting of the citizens of Toronto last October, “a sacred trust not merely for the citizens of Toronto, but for the people of the Province and of the Dominion at large;

And whereas, the very conditions upon which this historic site was transferred to the keeping of this city by the Dominion Government were the preservation of the Fort as one of our oldest land marks:

Be it resolved, that the Ontario Educational Association learns with regret that attempts are now being made to alienate these sacred grounds to purposes which would destroy their value as historic land marks, and commends the protection of these grounds to the vigilant care of the first city of Ontario; and further, would remind the City Council of Toronto of the obligation under which they are to the people of Canada in faithfully and honorably fulfilling the terms and conditions of the great trust they have undertaken to preserve this site for posterity.

The following resolution was not adopted:

11. That the minimum age of teachers be fixed at 21 years.

Dr. Adams addressed the meeting on the bill now before the

Legislature, having reference to the dental inspection of school children, after which the following resolution was carried:

12. That this Association approves of any steps taken to secure the inspection of pupils of Public Schools as to their teeth, eyesight and hearing.

The following Committee was elected to place before the Minister of Education the resolutions passed by the Association during this season:

Messrs. S. B. Sinclair, Wm. Scott, L. E. Embree, J. E. Tom, A. McMillan, J. Bennett and R. A. Ward.

The expense incurred by the Committee in charge of the resolutions for printing and postage, amounting to \$3.97, was ordered to be paid.

The meeting adjourned.

The Association met at 8 p.m. in the West Hall, Mr. Squair in the chair.

Professor W. H. Fraser gave an illustrated address, entitled, "A Tour in Spain."

The thanks of the Association were tendered to Professor Fraser for his very interesting address.

Refreshments were served in the dining hall of the University, and the Association adjourned at 11 p.m.

*MINUTES OF THE COLLEGE AND HIGH SCHOOL
DEPARTMENT.*

APRIL 19TH, 1906.

The Department met in West Hall, University Building, at 9 a.m., Mr. T. H. Smyth taking the chair.

The minutes of the previous meeting were approved.

CHAIRMAN'S ADDRESS.

The Chairman read his inaugural address, sketching the different efforts towards educational reform in Ontario in the past and making certain suggestions for the future. Among other things the following recommendations were advanced: That discipline should receive greater attention in training schools; that High School Inspectors should be specialists and that all departments should be represented; that university professors should be pedagogically trained; that Public School Inspectors should be university graduates; and that the lot of the teacher should be made more comfortable by higher salaries and a liberal provision for superannuation.

REPORT OF LEGISLATION COMMITTEE, COLLEGE AND HIGH
SCHOOL DEPARTMENT.

To the College and High School Department:

Ladies and Gentlemen,—Your Legislation Committee, appointed to confer with the Government on all matters affecting secondary education, begs leave to report as follows:

1. In May last the Minister of Education was notified by the Secretary of the existence and objects of the Committee, and courteously replied that it would give him pleasure to communicate with the Committee whenever matters concerning the welfare of the secondary schools came under review by the Department. During the year it has been announced as the policy of the Education Department not to touch for the present the Act or Regu-

lations relating to High Schools. Consequently there has been nothing for the Committee to do in that regard.

2. In October the functions of the Government and Education Department, with reference to Toronto University were, so far as enquiry was concerned, temporarily delegated to a Royal Commission. Your Committee felt justified in assuming that its power to confer with the Education Department involved also the duty of representing the High Schools before any such Commission. Consequently a conference with the University Commission was sought and cheerfully granted.

On December 2nd a majority of the Committee met in Dr. Burwash's office, and agreed upon the recommendations, a report of which is hereby appended and printed copies of which have been placed in your hands. On December 16th the Committee met the Commission by appointment in the Grange and was granted a very cordial and informal interview. A sympathetic spirit towards High School interests in the University was manifested by members of the Commission present, who were Messrs. Flavelle, Goldwin Smith, Cody, Walker and MacDonald, the Chancellor, Sir Wm. Meredith, and the Secretary of the Commission, Mr. Colquhoun, being unavoidably absent. The Conference was not at all confidential, but nothing was said that in any way committed the Commission to any particular line of action.

It might be well to state *seriatim* the recommendations presented by your Committee and to estimate as nearly as possible what the result has been:

I. REPRESENTATION IN SENATE.

1. That the representation of High School teachers in the Senate be doubled proportionately.

2. That before the election of High School representatives regular nominations be made, requiring the signatures of at least ten persons qualified to vote.

3. That the travelling expenses of all members of the Senate who do not reside in Toronto be paid by the authorities.

Of these, Nos. 1 and 2 have been granted and have been incorporated in the University Bill. No. 3 has been left to be dealt with by the Senate. (See page xxiv of the Report of the Royal Commission.)

II. PROVINCIAL MATRICULATION BOARD.

The Committee decided not to trouble the Commission about such academic matters as the standard of admission, but recommended as follows:

"That a Provincial Matriculation Board of ten be established, to have initiative powers of control over the curriculum for matriculation into all the Chartered Universities of the Province, five to be named by the Universities and five to be elected from High School teachers at the annual meeting of the College and High School Department of the Ontario Educational Association, this Board to report to the several governing bodies of the Universities for a final ratification of its decisions."

The opinion of the Committee with regard to the appointment of examiners was that it should be left to any consultative council that might be adopted by the Education Department.

Your Committee regrets that the Commission has not seen fit to embody some such recommendation as this in its report. In fact the whole question of matriculation has been left severely alone, except for a provision in the Government's bill relating to the Education Department, which re-imposes on the Advisory Council the functions formerly exercised by the Educational Council as regards the appointment of matriculation examiners and the conduct of the examination. In a general way the question of the matriculation curriculum might be said to come within the purview of the new Advisory Council, in so far as this is to be consulted by the Minister with reference to the course of study in High and Public Schools.

It was hoped from the sympathetic attitude of the Commission that some special provision would be made, safe-guarding the interests of the High Schools and of education generally in this important matter of matriculation. The only thing done in this direction is the doubling of the voting strength of High School teachers on the Senate. At the same time it should be pointed out that whereas formerly one of the two High School representatives was officially present on the Board of Arts Studies and therefore had a voice at the formative stage of making the matriculation curriculum, now under the recommendation of the Commission (page xxviii, Report) all such committee work is to be transferred from the Senate to the Arts Faculty Council, on

which the High School representatives apparently are to have no status at all.

It has been stated that, although the Commission as a whole was very favorably disposed to the proposal made by your Committee, difficulties presented themselves at the last moment, and it was decided to leave the matter to be dealt with by the Senate. It is confidently predicted that the Senate will do justice in the premises. It is just possible, however, that if any feasible scheme is suggested by the teachers, even yet something may be done before the University Bill is finally disposed of.

III. ALUMNI AND UNIVERSITY.

“That an officer be appointed by the University whose duty it shall be to bring the alumni into closer touch with the University with regard to all University public functions and exercises, to keep the alumni informed of all matters affecting the welfare of the University and to promote the interests of graduates in every legitimate way.”

It is stated that the objects set forth in this recommendation were intended to be realized under the provisions of the Commission’s Report relating to Convocation. (See p. xxvii, Report.) In this clause of the Report, however, there appears to be no distinct recognition of the principle as specified in the recommendation of your Committee.

IV. PEDAGOGY.

“That it would be in the interests of education if a chair of pedagogy were established in Toronto University.”

This recommendation has been adopted (p. li, Report), and the Commission has gone further in recommending what appears to be a removal of the training facilities from Hamilton to Toronto.

Your Committee regrets that it has been unable to deal with Mr. Embree’s proposals of a year ago. These were laid before the Committee by the Secretary on December 2nd, but for lack of time were held over. Now, owing to the illness of Mr. Embree, it is found desirable to postpone consideration still

further and the Committee would ask your indulgence and instructions in this matter.

All of which is respectfully submitted.

N. BURWASH,

Chairman of Committee.

E. W. HAGARTY,

Secretary of Committee.

This report was received and adopted, a motion to strike out the clause relating to the appointment of an official to represent the Alumni of Toronto University being voted down.

On motion of Mr. Patterson the Committee was re-appointed with a continuation of its former duties.

EDUCATION FOR VOCATION.

Professor Alexander delivered an address on the subject of this heading. The necessity of adapting education to the practical requirements of life was admitted, but it was maintained that culture in the abstract should be kept as the central object. One fault of Toronto University lies in the fact that the honor courses are too technical and narrow and that the object is not general culture. The theory of Professor James that a university should be a collection of various schools whose purpose is to prepare for *work*, not *learning*, was combated by the speaker.

THE PROFESSIONAL TRAINING OF TEACHERS.

Mr. R. A. Thompson read his paper, defending the work of the Ontario Normal College, and making certain suggestions in regard to the training of High School teachers in future. The text of the paper will be found elsewhere.

On motion of Mr. Henderson, seconded by Mr. Marshall, a hearty vote of thanks was tendered Mr. Thompson.

Moved by Mr. Ellis, seconded by Mr. Burt, that in the opinion of this department the time has fully come in the educational development of this province, when a Department of Education should be established,—this Department to consist, at least, of a qualified staff of instructors in the theory and

methods of educational work and of institutions capable of affording adequate practice, under competent guidance, in the art of teaching in all grades required in the Public and High Schools of Ontario. Carried.

SOME PHASES OF HIGH SCHOOL WORK IN CONNECTION WITH THE NORMAL SCHOOL COURSES.

As the hour for adjournment had arrived, and but a small attendance remained, it was suggested that Mr. Scott allow his paper to be printed in full in the report of proceedings, so that the members not present might have an opportunity of perusing the suggestions made. This was by motion agreed to.

ELECTION OF OFFICERS.

The following officers were elected for the ensuing year:

<i>Chairman,</i>	-	-	W. S. Milner.
<i>Vice-Chairman</i>	-	-	J. Davison.
<i>Secretary.</i>	-	-	E. W. Hagarty. 662 Euclid Ave., Toronto.
Representatives of Sections:			

The following were reported:

<i>Modern Languages,</i>	-	-	J. Squair.
<i>Classics,</i>	-	-	H. J. Crawford.
<i>Mathematics.</i>	-	-	R. Wightman.
<i>Science,</i>	-	-	T. J. Ivey.
<i>Historical,</i>	-	-	W. J. Robertson.
<i>Commercial.</i>	-	-	R. H. Eldon.

At a meeting of the Committee Messrs. Crawford, Wightman, Ivey, and Robertson were chosen to represent the department on the Board of Directors, Ontario Educational Association.

The department adjourned at 12.30 p.m., the afternoon session being dispensed with in favor of the joint meeting of departments, held to consider Dr. Sinclair's resolutions on the status and remuneration of the teacher.

E. W. HAGARTY,
*Secretary, College and
High School Department.*

MINUTES OF THE HIGH SCHOOL PRINCIPALS' SECTION.

The chair was taken by the President, J. A. Houston, M.A.

The minutes of last meeting were read and adopted; also the Treasurer's statement, showing a balance of \$6.60 on hand.

Dr. Packenham reported for the committee appointed last year to confer with the Minister of Education *re* Inspection and other matters.

Mr. J. A. Houston, M.A., introduced a discussion of the subject, "Should the Lower School Examination be Restored?"

Mr. A. E. Coombs, M.A., Pæd.B., read a paper on "How to Make Drill Popular."

Under the head of general business officers were elected as follows:

<i>Hon. President,</i>	-	-	J. A. Houston, M.A.
<i>President,</i>	-	-	J. A. Davidson, B.A.
<i>Sec.-Treas.,</i>	-	-	F. C. Colbeck, B.A.

It was moved by Mr. Ellis, seconded by Mr. Gavin, and carried, that the Chairman be requested to name a committee of seven members, representing the various grades of schools, to consider any draft of regulations or legislation that is likely to affect those parts of the educational system in which the Principals' Section may be particularly interested; to give information and opinions regarding the same; and to advise the Minister in reference to them; this committee also to take cognizance of any other matters that may be referred to it.

The Chairman named the following committee: Messrs. Embree, Ellis, Burt, Briden, Steele, Kirkeconnell and Elliott.

Mr. A. H. McDougall introduced a discussion of the following subject: "The Effect of Changes in the High School Entrance."

It was moved by Mr. Gavin, seconded by Mr. McDougall, and carried, that the matter of Entrants from private schools be referred to the Committee of Seven.

Mr. S. J. Radcliffe, B.A., read a paper on, "School-room Decoration."

Mr. Wm. Briden, B.A., introduced a discussion on, "The Effect of Continuation Classes in the High Schools."

Mr. F. A. Kirkeconnell, B.A., introduced a discussion of, "The Senior Teachers' Course."

Moved by Mr. Crassweller, seconded by Mr. Ellis, and carried, that this Section urge very strongly on the Minister of Education that students who shall have passed Part I. or Part II. of the Senior Examination, either this year or any previous year, should be allowed to complete their examination, taking substantially the same options as previously required.

Moved by Mr. Burt, seconded by Mr. Dickson, and carried, that the matter of Senior Teachers be left to the Committee of Seven.

MINUTES OF MODERN LANGUAGE SECTION.

This Section met at 10 a.m., on Tuesday, April 17th, in Room 9, University College. The President, Mr. J. S. Lane, took as the subject of his address: "Some By-Products of Modern Language Teaching."

A Committee, consisting of Messrs. Lane, Squair, Lang, Hogarth, MacDonald, and Miss A. E. Marty, was appointed to take into consideration certain matters regarding the equipment of our High Schools for Modern Language teaching, referred to in the President's address.

Mr. E. S. Hogarth read a paper on "High School Texts in French and German."

The Section reassembled at 2 p.m. in the Biological Building.

This being the ter-centenary of the birth of Corneille, Monsieur de Champ gave an address in French on Corneille.

Mr. J. S. Lane followed with an exhibition of the Phonograph and an address on its utility in the teaching of Modern Languages.

Mr. A. H. Young then gave an address on "The Sistine Chapel," illustrated with lantern projections.

WEDNESDAY, April 18th.

The Section reassembled at 10 a.m. in Room 9.

Mr. William Wilfrid Campbell, who had been expected to read a paper on "Modern Life," was prevented by illness from being present.

Mr. J. E. Middleton, dramatic editor of the "News," read a paper on "The Decline of Tragedy in the Modern Drama."

The following officers were elected:

President, Mr. E. S. Hogarth, Hamilton; Vice-President, Miss A. E. Marty, Ottawa; Secretary-Treasurer, Mr. J. Squair, Toronto; Conneillors, Miss E. M. Bunnell, Brantford, Messrs. A. E. Day, Walkerton, A. E. Lang, Toronto, W. A. McKim, Perth, A. Mowat, Brockville, A. H. Young, Toronto.

The Section reassembled at 2 p.m. in Room 9. Mr. G. L. MacDonald read a paper on "The Effect of the New Regulations on French and German in the High Schools."

It was resolved, that the President of this Section be instructed to urge upon the authorities of the Education Department in any way he may deem proper the advisability of making French and German effective options for the Junior and Senior Teachers' Examinations, in view of the fact that for many of the students of our secondary schools language study is a more effective means of mental culture than science study.

Miss Maud M. Hawkins read a paper on "Literature in the Lower School."

The Section then adjourned.

MINUTES OF THE NATURAL SCIENCE SECTION.

TUESDAY, APRIL 17TH, 1906.

The annual meeting of this Section was held in the Chemical Building.

The Section met at 2 p.m., with the President, Mr. R. Lees, in the chair. About forty members were present.

The minutes of the previous meeting were confirmed, and communications from the General Secretary and from President Creelman, of Guelph Agricultural College, were read.

On motion, G. C. Carefoot was appointed press reporter.

It was decided also, on motion, to accept the invitation to visit Jarvis Street Collegiate Institute the next afternoon, at 2 p.m., to see the specimens and work done in Nature Study and to hear the paper on the "Teaching of Elementary Science," by T. J. Ivey.

The Secretary then explained that Dr. Lang, who had so lately been bereaved, had kindly consented to go on with his lecture, but that Mr. G. A. Smith would be unable to be present for his paper, as he had been suddenly called away by the serious illness of a relative.

The President then delivered his address on "Educational Values," and after some discussion upon this subject it was moved by Mr. Hill, seconded by Mr. Lennox, that this paper be printed in the proceedings of the Association.

Mr. Lennox suggested that shorthand characters be used for printed books.

As a result of a suggestion in the meetings of the Section in 1905, an exchange of fossils was made by some of the members.

The officers were elected for the ensuing year as follows:

<i>President (Honorary),</i>	-	Dr. Lang, Toronto.
<i>President,</i>	-	J. P. Hume, B.A.
<i>Vice-President,</i>	-	A. Cossens, B.A., Parkdale Collegiate Inst.
<i>Sec.-Treas. and Representative to College and High School</i>		
<i>Dept.</i>	-	T. J. Ivey, M.A., Jarvis St. Collegiate Inst.
<i>Councillors,</i>	-	G. A. Carefoot, J. H. Sexton, J. R. Moore, W. J. Hamilton, H. J. Clarke.

The meeting then adjourned.

WEDNESDAY, APRIL 18TH.

Work was resumed at 9.30 a.m. The President and Secretary being absent, the newly appointed President and Secretary assumed their respective duties.

An address was then delivered by the Honorary President, Mr. Turner, on "Study of Biology."

Mr. Turner justified the place of Biology on the curriculum, but considered that Literature, Mathematics, etc., owing to their appeal to the emotions, etc., are equally essential to a well-rounded education.

The second paper was an address by Mr. A. B. Klugh, on

"Bird Migration at Point Pelee," illustrated by specimens. This was followed by questions and discussions.

The last paper of the morning session was given by Dr. W. L. Goodwin, of Kingston, on "Recent Advances in Chemistry." This was illustrated by lantern slides, and gave a most interesting history of Chemistry, but for lack of time could not be finished.

On motion of Messrs. Sexton and Moore, these three interesting and instructive papers were ordered to be printed in the Proceedings, but Mr. Klugh explained that it was not possible to have his paper printed, as it was to appear shortly in a bird magazine.

The meeting then adjourned.

At 2 p.m. the Section met at Jarvis Street Collegiate to examine the specimens and apparatus, and to see the work done along the line of Nature Study.

Following this, a paper was read by Mr. T. J. Ivey, on the "Teaching of Elementary Science" in Secondary Schools. Mr. J. P. Hume in the chair

After illustrating some methods of pressing and mounting specimens, questions and discussions on Nature Study and Elementary Physics followed.

It was moved by Mr. McMurchy, seconded by Mr. H. J. Clarke, that a vote of thanks be tendered Mr. Ivey for this opportunity of visiting the Collegiate and seeing the work done, and also that the paper read be printed in the Proceedings, so that all Science teachers might at least have a chance to read it.

The members then returned at 3 p.m. to the Chemical Building.

The last paper, by Dr. Lang, on "Combustion," was delivered before the Natural Science and the Mathematical and Physical Sections combined. The talk was illustrated by very interesting experiments.

On motion by Mr. Lennox, seconded by Professor Chant, a vote of thanks was tendered Dr. Lang for his very instructive paper.

This closed the meetings of the Section for the year.

T. J. IVEY, *Secretary.*

MINUTES OF THE CLASSICAL SECTION.

TUESDAY, APRIL 17TH, 1906.

The Section assembled in Room 2, University College, at 2 p.m. Speaking to a motion for the adoption of the Minutes, as printed in the "Proceedings," Professor J. C. Robertson took exception to the phrase, "having been vetoed by the Latin Faculties of the federated Colleges," used with reference to the treatment of the report of the Latin Committee, and on motion of Professor Robertson, seconded by Mr. H. I. Strang, the minutes were adopted with the phrase expunged.

The President, Professor Fletcher, read his address on "Idiomatic Expressions in Cicero and Their Translation." (See page 217.) Several of the Latin teachers present expressed their appreciation of the usefulness of the suggestions made by the President for improving the form of rendering this author.

Mr. D. A. Glassey introduced the discussion of the topic, "Difficulties a Classical Teacher Meets."

He noted as one difficulty the ignorance on the part of pupils of the Elements of English Grammar, but deprecated the notion that Latin was the most laborious of subjects. The dry and literal method of the teacher was often to blame; if the teacher was inspired with a love for his subject, and entered into his work with spirit and zest, many of the apparent difficulties disappeared.

Mr. J. T. Luton spoke of the lack of time on the part of pupils, owing to the over-crowded and inflexible curriculum. There was too much diffusion of energy, and too many subjects were attempted at once; the course ought to be more elective.

The discussion was continued by Messrs Strang, Crawford, Mayberry, Munro and Hagarty.

The Secretary having given notice of his retirement from that position after four years of service, officers for the next year were elected as follows:

<i>Honorary President,</i>	-	-	H. J. Crawford.
<i>President,</i>	-	-	F. C. Colbeck.
<i>Vice-President,</i>	-	-	J. Dolan.
<i>Secretary-Treasurer,</i>	-	-	D. A. Glassey (Guelph).
<i>Councillors,</i>	-	-	G. O. Smith, C. A. Mayberry, G. W. Johnston, F. W. French.

WEDNESDAY, APRIL 18TH.

On reassembling at 10 a.m., the President resigned the chair to the Vice-President, Mr. F. C. Colbeck, for the purpose of taking part in the discussion on the topic, "Questions on Examination Papers."

Mr. H. I. Strang introduced the topic, remarking that not much serious fault could be found with the papers of recent years. As these papers should have a directive value to teachers and pupils, they ought to be of a certain general pattern, and not subject to sudden changes of a revolutionary character. The questions ought to be definite, and not contain too many details. The paper should not be so long or hard that an average student, well prepared, could not cover it in the time allotted. He criticized mildly some parts of the Latin papers of 1905, holding that the labored language of the Composition paper frightened pupils, and that the question on *Fortuna* in the Authors was obscure.

Mr. D. M. Grant also expressed himself well satisfied with the nature of the recent Classical papers. He offered some criticism of the length of some Authors papers, and the occasional difficulty of the Composition and the Sight, and suggested that more attention might be paid to the literary treatment of Horace and Virgil.

The system of marking on the Pass Composition paper appeared to him somewhat loose.

Professor Carruthers explained that the reason for grouping the questions on details was that otherwise objections by fellow-examiners to the length would result in excluding these entirely.

Professor Maenaughton made an animated defence of the questions criticized.

There was nothing alarming, he asserted, in the phrases on the Composition paper: nobody ever failed in Composition whom human ingenuity could have passed in that subject. It was the Grammar that such candidates did not know. The object of the papers was to set before the teachers an ideal for them to keep in view. There was too little cultivation of the imagination in the teaching. He explained and defended the question on *Fortuna*, and pointed out that easy sight was hard to find.

Professor Fletcher showed that the paper to which objection had been made was well answered by candidates, and explained

that questions to which the answers might be "crammed" were discouraged.

Messrs. J. Henderson, L. C. Smith, R. A. Little and F. C. Colbeek also took part in the discussion.

Mr. H. J. Crawford, in presenting "Some Recent Aids," recommended the new *Classical Journal*, published by the University of Chicago, as of great interest and suggestiveness to the teacher in Secondary Schools.

He also exhibited and explained "Cybulski's Wall Charts." These are a series of colored charts illustrating antiquities, published by K. F. Koehler, of Leipzig, and costing from one dollar to one dollar and fifty cents each. Some of the more useful for High School work are those on Roman Arms and Armor, Greek Arms and Armor, Ancient Ships, War and Siege Engines, Roman Camps, and the Plans of Ancient Athens and Ancient Rome. Mr. Crawford stated that he had caused the German pamphlets of description to be translated, and would lend them to any teacher interested in studying the charts.

Professor G. H. Campbell followed with an interesting description of the "Buildings of the Acropolis," and showed pictures to illustrate them.

The afternoon session was held in the Biological Building, where Professor Carruthers delivered a very scholarly lecture on the "Mycenaeans and Their Civilisation," accompanying his remarks with a fine series of lantern slides.

The session for 1906 was concluded with a brilliant and entertaining account, by Professor R. Ramsay Wright, of the views of Victor Bérard, on the connection between the Phœnicians and the Odyssey. This lecture was illustrated by the epidiascope, and at its conclusion a hearty vote of thanks was given Professor Wright and his assistant, Dr. Piersol.

H. J. CRAWFORD, *Secretary.*

MINUTES OF THE MATHEMATICAL AND PHYSICAL SECTION.

TUESDAY, APRIL 17TH, 1906.

The Section met this afternoon at 2 o'clock in Room 16, University College, the President, C. A. Chant, M.A., Ph.D., in the chair.

The Minutes of the meeting of 1905 were read and confirmed.

Mr. G. W. Keith was then appointed press reporter for the present meetings.

Then followed the President's address, a very interesting and instructive account of "The Labrador Eclipse Expedition of 1905," illustrated by many lantern pictures.

Mr. R. N. Merritt, being called upon, read a paper on "Trigonometry by Laboratory Method," in which it was pointed out that the subject, as treated at present, consists too largely of algebraic manipulation of symbols. Much greater attention should be paid to the Geometrical side of the subject, making the work more concrete and practical. The speaker indicated many ways in which this could be done.

The next paper, read by Mr. R. W. Hedley, on "Mathematics in the Secondary Schools of Great Britain, Germany and the United States," consisted of a very exhaustive comparison of the aim, scope and result of the systems at present in vogue in the countries named.

Then followed a very interesting discussion on the two papers read, the following taking part: Professor DeLury, Messrs. Armstrong, McDougal, W. Taylor, Houston and Dr. Chant.

The meeting then adjourned.

WEDNESDAY, APRIL 18TH, 1906.

The Section again met at 9.30 a.m. The President opened the meeting by reading a few notices, and then called upon Mr. W. J. Patterson, M.A., to introduce a discussion upon the effect

of the recent changes in Geometry, by reading his paper on "Constructive Geometry of the Lower School." Then the effect of the changes "On the Progress of the Theoretical Work of Form II," was discussed by Mr. J. D. Dickson, B.A. The discussion was continued by Professor Baker, Messrs. Thompson, Crassweller and W. Taylor.

The election of officers then took place, the following being elected by acclamation:

<i>Honorary President,</i>	-	-	C. A. Chant, Ph.D.
<i>President,</i>	-	-	H. S. Robertson, B.A.
<i>Vice-President,</i>	-	-	D. L. Crassweller, B.A.
<i>Secretary-Treasurer,</i>	-	-	R. Wightman, B.A.

At this point it was moved and seconded that the number of counsellors be limited to five. Carried.

The following were then elected: Messrs. W. J. Patterson, M.A., R. W. Hedley, B.A., J. D. Dickson, B.A., Wilson Taylor, B.A., Professor DeLury, M.A.

Representative to High School Department, R. Wightman, B.A.

Moved by Mr. R. A. Thompson, B.A., and seconded by Mr. W. J. Robertson, B.A., LL.B.: Whereas there is some probability that a new Inspector for High Schools may be appointed at an early date, therefore this Association desires to place on record its opinion, that the interests of Mathematics and education generally in this Province would be promoted by the Government selecting some one fitted by experience and with special qualifications in Mathematics. The motion was carried, and it was left with the Executive to deal with it.

In the absence of Professor DeLury, Mr. Keith reported for the Library Committee as follows: Books had been purchased for the Library, and were now on the way; books had been promised by Toronto publishers; books had been donated by friends; a list of all these books would be published in the Proceedings. The report was adopted.

Moved and seconded that the Library Committee be a standing committee. Carried.

Mr. Keith then took up, problem by problem, the Algebra

examination paper for Junior Leaving, 1905, the discussion taking place as the paper was proceeded with.

The meeting then adjourned to meet again at 2 p.m.

When the Section reassembled, Mr. W. M. Govenlock, reviewed the "Problems" of 1905, giving one or more solutions for each. The subject was discussed as each problem was taken up.

Mr. A. W. Massey then discussed the question: "Should the 'scholarship' work extend over two years and the examination be taken in two parts?" Time did not allow for the discussion which the paper merited, it already being past the time for meeting in the Chemical Building to hear Dr. Lang's lecture on "Combustion," with experimental illustrations. The latter being very numerous, a most interesting hour was spent, and the Doctor was heard with much appreciation. A hearty vote of thanks was tendered the speaker at the close of the lecture.

The meeting then adjourned.

R. WIGHTMAN, *Secretary-Treasurer.*

MINUTES OF THE HISTORICAL SECTION.

TUESDAY, April 17th, 1906.

The first session of the twelfth annual meeting of the Historical Section of the Ontario Educational Association was held at 2 p.m., in Room 10, University College.

Mr. W. J. Robertson, B.A., was requested, in the absence of the President, to take the chair.

Mr. E. T. Kylie, B.A., read an interesting paper on "Aims and Methods of Historical Study," which appears elsewhere in this volume. In the discussion which followed, Mr. A. Stevenson, Mr. G. M. Wrong, Mr. W. J. Robertson, Miss Janet Carnochan, Mr. A. Macvicar, Mr. J. P. Hoag, Mr. J. S. Cartstairs, Mr. W. Prendergast, Principal James Whyte, Mrs. Clementina Fessenden, took part.

On the motion of Mr. A. Macvicar, seconded by Mr. G. M. Wrong, it was resolved to publish Mr. Kylie's paper in the Proceedings.

The following officers were elected:

<i>President,</i>	- - -	J. P. Hoag, B.A.
<i>Vice-President,</i>	- - -	A. MacVicar, B.A.
<i>Secretary-Treasurer,</i>	- - -	J. S. Carstairs, B.A.
<i>Councillors,</i>	- - -	E. H. Oliver, Ph.D.; E. J. Kylie, B.A.; W. Prender- gast, B.A., J. Keillor, B.A.; A. Stevenson, B.A.; W. Dale, B.A.

<i>Representative to the Col- lege and High School Department,</i>	- - -	W. J. Robertson, B.A., LL.B.
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WEDNESDAY, April 18th, 1906.

At a joint meeting of the Historical Section and the Ontario Historical Society, held at 2 p.m., the President, Mr. W. Dale, M.A., presided.

Mr. Dale gave an admirable address on "Europe and America." Religion, he believed, was the core, the centre of the history of both continents. The history of the world revolved about Rome: (1) Before the supremacy of Rome; (2) During the supremacy of Rome; (3) Since the supremacy of Rome. The Pilgrim Fathers were the first to substitute "libertas" for "imperium." European history even down to the Conference at Algeciras is the result of two opposing forces, Teuton and Latin. America is a meeting-place of the nations—a larger and greater Sicily.

It was moved by Mr. J. S. Carstairs, seconded by Chancellor Burwash:

1. That the Historical Section impress upon the Federal and Provincial Governments and upon local municipalities the duty of preserving the important historical landmarks of the country as object lessons in history, whereby the children of future generations of Canadians may the more clearly understand the labors, sufferings, and sacrifices by which this country was protected and built up to become the great corner-stone it now is in the fabric of our Empire. As examples of the early stockaded forts of this continent, and as illustrations of the history of military engineering the old forts at Toronto and

Niagara possess a high educational value apart from their interest as glorious monuments of the bravery of the British Crown during a period when the Mother Country was battling with the nations of two continents. Seeing with what care such relics are preserved in the Mother Country, in Europe, and in the United States, and recognizing the influence they have upon national life and character, this Association learns with regret that attempts are now being made to alienate those sacred grounds to uses which would destroy their value as historic landmarks. The Historical Section commends the spirit of the resolution passed at a public meeting of the citizens of Toronto last October, which set forth that "the preservation of these historic grounds should be considered a sacred trust, not merely for the citizens of Toronto, but for the people of the Province and the Dominion at large," especially as their preservation was a condition upon which the fort was transferred to the keeping of the city by the Dominion Government, and this Section trusts to the vigilant patriotism of the capital city of Ontario to see that this solemn obligation is fulfilled.

2. That the Historical Section commends this resolution to the consideration of the College and High School Department and to the General Association.

After a spirited discussion, shared in by Miss Janet Carnochan, Mr. J. H. Coyne, Mrs. Thompson, Mr. Barlow Cumberland, Mr. Alexander Fraser, and Dr. J. O. Miller, the motion was adopted with the suggestion that certain changes in the wording be made.

Moved by Mr. J. S. Carstairs, seconded by Mr. W. S. Milner, and resolved, that the President and Secretary be continued as a Committee to enlist the co-operation of English teachers to merge this Section into an English and History Section.

On the motion of Mr. Alexander Fraser, seconded by Mr. J. S. Carstairs, the President was requested to appoint a committee to draft a resolution setting forth the idea that a Royal Commission should be appointed by the Government to hold in trust, as in the Motherland, all historical sites.

As a committee the President named J. S. Carstairs, E. M. Wrong, W. S. Milner, Alexander Fraser.

Miss Miller, of Newbury, read a paper on "The Canada of the Future," urging a broad nationalism and a unifying common interest.

In the absence of Lieut.-Colonel Ernest Cruikshank, his paper on "The Administration of Sir James Craig," was read by the Secretary. Based on unpublished documents, the paper is a valuable contribution to the social and industrial, the political and military conditions of the period.

J. S. CARSTAIRS, *Secretary.*

MINUTES OF THE COMMERCIAL SECTION.

APRIL 17th, 1906.

The Commercial Section of the Ontario Educational Association met as arranged in Room 6, but on account of attendance at commencement of the meeting, it was opened informally with the President, Mr. Dickinson, in the chair.

Dr. Forest, as an introduction to his paper, "The Vowel in Shorthand," gave a demonstration of what he could do with a five-month pupil. A number of letters were given and read and the Doctor laid stress on the legibility of her outlines which enabled the young lady to read her notes easily and accurately. This was followed by a paper which traced in detail the development of phonographic writing, from the days of Ancient Rome to the present time. Point by point the necessity for vowels was made plain and the practical advantage of that system which made use of the most facile vowel characters. On motion of R. H. Elden, a vote of thanks was rendered the Doctor for his interesting paper.

TUESDAY, 18th, 1906.

At 10 a.m. the meeting of this Section was opened formally by the President. The minutes of last year were read and approved. As no matters of business were brought up, the programme of the day was proceeded with.

An instructive paper on "Auditing," a synopsis of which appears elsewhere, given by Mr. W. A. Douglas, of Toronto, was well received. Following this, F. W. Edward, of Woodstock, gave a very pointed and practical address, outlining a year course in typewriting. Stress was laid upon the necessity of the

teacher keeping close and accurate account of the work of each pupil throughout the year. His class work is important and he should feel that the teacher is interested in it and has such close tab on it that he cannot afford to waste a single minute. Type-writing is now one of the essentials of office work, and faulty typewriting is inexcusable. Systems in use vary, but the only one to give satisfaction must employ all four fingers of each hand and have as its aim the development of a purely "Touch" system of writing.

In the afternoon, Mr. Douglas again laid before the Section a paper on "The Effects on Education of Social Conditions." As this paper was of more than passing interest it was decided to include the substance of it as well as Mr. Douglas' suggestions on Auditing, in the Annual Report.

The "Commercial Diploma Examination Papers," made out by the Section for the last three years, were then discussed. It was decided that these papers should be continued, as they tend to keep a uniform standard throughout the Province in the Commercial branches.

The officers elected for 1906-7:

<i>Rep. to Gen.,</i>	-	-	-	J. A. Dickinson.
<i>President,</i>	-	-	-	D. M. Walker (Niagara Falls).
<i>Vice-President,</i>	-	-	-	A. Voaden.
<i>Secretary,</i>	-	-	-	F. W. Edward (Woodstock).
<i>Councillors,</i>	-	-	-	Miss Bridgman, W. Baird, E. Skitch, W. Ward, A. F. Birchard, L. W. Taylor.

MINUTES OF THE PUBLIC SCHOOL DEPARTMENT.

TUESDAY, April 17th, 1906.

FORENOON SESSION.

The Public School Department of the Ontario Educational Association met in the East Hall of the University of Toronto, at 10 a.m.

Mr. J. Bennett, President, in the chair.

After devotional exercises, the regular order of business was proceeded with.

Mr. J. A. Short, of Brockville, was elected Minute-Secretary, and Chas. G. Fraser and H. Gray were elected Auditors.

The minutes of the last meeting, having been printed in the Annual Report of Proceedings, were, upon motion, taken as read and adopted.

Communications were read:

1. From President Lees, of the Natural Science Section of the Ontario Educational Association, regarding an address on "Nature Study" by Prof. Bailey, of Cornell University.
2. From the Carleton County Teachers' Association, *re* the formation of a Teachers' Union.
3. From Teachers' Associations in various counties *re* the Resolutions passed by the P. S. Dept. in 1905.
4. From the Lennox and Addington Teachers' Association *re* making the vacations in rural sections the same as those in cities, towns and villages.

On motion of R. A. Ward and S. Aeheson, these communications, except the first, are referred to a Committee on Resolutions to be named by the President. The first was referred to the incoming Executive of this department of the Ontario Educational Association.

The President then appointed the following a Committee on Resolutions: S. McAllister, Toronto; L. H. Luck, Deseronto; T. E. Langford, Shelburne; C. E. Kelley, Hamilton; and Miss Collison, Mitchell.

Secretary R. A. Ward then read his report, which was received and adopted. (See page 256).

The following notices of motion were then received:

1. From J. A. Short, that the Practical Speller be revised, eliminating certain words and sections.

2. From Chas. G. Fraser, that the General Association be requested to consider the report of the Joint Committee, regarding an organized union of the teachers of Ontario, at the Wednesday evening session.

With the unanimous consent of the meeting the latter motion was introduced by Chas. G. Fraser, and seconded by S. Acheson. Carried.

President Bennett then gave his address on "The Superannuation of Teachers."

The President's address was then discussed.

It was moved by H. Gray and L. J. Clark, that the Public School Department of the Ontario Educational Association send the suggestions regarding the Superannuation of Teachers, presented by the President, to the General Association, with the approval of this department.

It was moved in amendment by T. E. Langford and M. L. Irwin "That the report be received and passed on to the General Association with our approval of all except the compulsory clause. Lost.

Moved in amendment by E. T. Young and W. D. Spence, that the further discussion of the superannuation scheme be laid over until it comes up in the meeting of the General Association. Carried.

The meeting then adjourned.

AFTERNOON SESSION.

Joint meeting of Inspectors, Training, and Public School Departments.

President Bennett in the chair.

As Mr. Wm. Scott could not be present, Inspector J. J. Tilley presented the report of the "Committee of Nine" on the reorganization of Training Schools, which was as follows:

Whereas this committee was appointed at the regular meeting

of the Ontario Educational Association, in 1905, to report upon the reorganization of the Training Schools of the Province;

And whereas since the time of the appointment of the committee the Honorable the Minister of Education has both by a circular letter and by remarks in the Legislative Assembly, intimated that the Government of the Province has under consideration a plan for the training of teachers;

Be it resolved that this committee submit no report to the Ontario Educational Association, but merely ask to be dismissed, suggesting a consideration of the scheme outlined in the bill presented to the Legislature by the Honorable the Minister of Education.

On motion of Inspector J. J. Tilley and Inspector J. E. Tom, the report was adopted.

Copies of the new Bills were then distributed and the question thrown open for discussion.

The plan regarding Training Schools was adopted.

On motion of J. E. Tom and R. A. Ward, it was carried to amend Section 5 of Bill 215 by adding a sub-section (*i*) providing for two trustees elected by the Trustees' Department of the Ontario Educational Association being on the Advisory Committee.

On motion of C. B. Edwards and W. E. Groves, it was carried that Bill 215, sub-section (*d*), be amended by appointing one member from the Western University.

On motion of Chas. G. Fraser and Inspector Carlyle, it was carried that in the opinion of this joint meeting the Advisory Council proposed should have the power of initiation in the discussion of any question affecting the educational interests of the Province, and not be confined merely to the discussion of such subjects as may be referred to it.

Inspector Mosier thought the question had not been fully discussed, and on motion of E. T. Young and Chas. G. Fraser the motion was reconsidered.

Mr. Fraser again stated his motion and it was seconded by Mr. Young. The discussion was carried on by Inspector Mosier, W. E. Groves, Inspector Carlyle, Inspector McIntosh, Wm. Linton, S. McAllister, and T. H. Smyth. The motion was lost.

On motion of J. Dearness and E. T. Young it was carried that Clause 6, Section (1), be amended by striking out the words between *Minister of Education* and *the Departmental regulation*,

and substituting, *on subjects pertaining to*, so that the clause would read:

The said Advisory Council of Education shall be a consultative committee to confer with the Minister of Education on subjects pertaining to the departmental regulations affecting the courses of study and the text books for all classes of provincial schools, continuation classes, manual training departments, household science departments and school gardens, the qualifications of teachers and inspectors and the departmental examinations.

On motion of S. Acheson and G. A. Cole, it was carried that a committee consisting of the Presidents of the departments in joint meeting be a committee to consider these bills and to report at 2 o'clock on Thursday afternoon.

The meeting then adjourned.

WEDNESDAY, April 18th, 1906.

FORENOON SESSION.

Session opened at 9 a.m., with devotional exercises. President Bennett was in the chair.

The minutes of the previous day were read and adopted.

The Treasurer, Mr. C. E. Kelley, then presented his report, showing receipts of \$102.06 and an expenditure of \$53.60, leaving a balance of \$48.46 in the treasury.

The report was received and referred to the auditors.

Mr. D. Harper gave notice of motion, "that in the opinion of this department of the Ontario Educational Association, it is advisable to have six trustees in rural sections instead of three."

The motions of which notice had been given the previous day were then considered.

It was moved by J. A. Short and Wm. Linton that there be a revision of the Practical Speller by eliminating certain sections and words which were very difficult and seldom, or never, used by ordinary individuals.

It was moved in amendment by D. Nairn and T. E Langford, that the book be removed from the list of text-books and that spelling be confined to the words in the readers and those used in the general subjects. Lost.

It was moved in amendment by R. A. Ward and G. A. Cole,

that a committee be appointed to take in hand the revision of the Practical Speller and report to this department next year. Lost.

It was moved in amendment by H. Ward, and seconded by Wm. Linton, that the Public School Department of the Ontario Educational Association considers the present Practical Speller as unsuited to the use of the Public Schools, and requests that it be replaced by a more suitable text. Carried.

On motion of Chas. G. Fraser and G. A. Cole, it was carried that the President of this department of the Ontario Educational Association name a committee to take in hand the revision of the Practical Speller, said committee to report to the Executive, who shall refer the report to the Advisory Council of Education for consideration.

The President then named the following committee: Chas. G. Fraser, Toronto (Convener); J. A. Short, Brockville; Wm. Linton, Galt; G. A. Cole, Orillia, and Miss A. C. Purvis, Brantford.

The Secretary, R. A. Ward, then called the roll by Inspectortates to find out how many delegates from the different County Associations were present and members of this department.

Mr. R. W. Hicks, Queen Victoria School, Toronto, occupied a few minutes calling attention to the work of "The League of the Empire," an organization formed in England to encourage and arrange for the carrying on of correspondence between the pupils of schools in different parts of the Empire. He dwelt on the advantages of such a correspondence and offered to furnish information regarding the scheme to any interested persons.

As Mr. L. E. Embree, the Chairman of the Joint Committee on the Organization of the Teachers of Ontario, was ill, Chas. G. Fraser, the Secretary of the Committee, presented the report. (See page 280).

It was moved by Chas. G. Fraser and seconded by S. McAllister that the report be received and considered clause by clause. Carried.

It was moved by C. E. Kelley and seconded by H. Gray, that Clause 1, recommending the formation of an organization of the teachers of the Province, to be known as The Ontario Teachers' Union, be adopted. Carried.

It was moved by S. Aeheson and seconded by E. T. Young, that we appoint a committee of three to place our recommendations before the General Association to-night. Carried.

The President named as the Committee, Chas. G. Fraser, S. Acheson and C. E. Kelley.

Miss Agnes C. Purvis, of Brantford, then read a paper on "Men and Women Teachers." (See page 264).

It was moved by R. A. Ward and seconded by R. W. Hicks, that Miss Purvis' paper be inserted in the Minutes of the Ontario Educational Association.

The election of officers was then proceeded with and resulted as follows:

<i>President,</i>	-	-	C. E. Kelley, Hamilton.
<i>Vice-President,</i>	-	-	H. Ward, B.A., Toronto.
<i>Past President,</i>	-	-	J. Bennett, Toronto.
<i>Secretary,</i>	-	-	Chas. G. Fraser, 10 Sylvan Ave., Toronto.
<i>Treasurer,</i>	-	-	T. E. Langford, M.A., Shelburne.

The meeting then adjourned.

AFTERNOON SESSION.

Joint meeting of the Public School and the Training Departments.

W. E. Groves, the Chairman of the Training Department, called the meeting to order at 2.15, and introduced Rev. T. B. Kilpatrick, LL.D., who read a paper on "The Ethics of Teaching."

It was moved by Wm. Wilson, and seconded by S. Acheson, that a hearty vote of thanks of this Association be tendered Professor Kilpatrick for his very excellent address. Carried.

Rev. E. M. Keirstead, D.D., then delivered an address on "How the World of Nature May be Made to Build up a World of Mind Within Us." (See page 272).

It was moved by R. A. Ward and seconded by J. Suddaby, that a hearty vote of thanks be tendered Professor Keirstead for his excellent address. Carried.

It was moved by S. Acheson and seconded by J. C. Spence, that the Treasurer of this Association interview the District Passenger Agents of the different railway companies to see what can be done for the delegates who unfortunately did not receive the proper form of certificate from the respective railway agents. Carried.

THURSDAY, April 19th, 1906.

FORENOON SESSION.

Meeting called to order at 9.15. President Bennett in the chair.

After devotional exercises, the minutes of the previous day were read and adopted.

Chas. G. Fraser then presented the Auditors' Report. The books had been examined and found correct. The report was adopted.

Mr. D. Harper then introduced his motion: That there should be six school trustees in rural sections. This was seconded by D. Carmichael.

It was moved in amendment by Wm. Linton and S. Acheson, that in the opinion of this Department of the Ontario Educational Association, the interests of education in rural districts would be best served by having boards of five trustees to manage the school affairs of each township.

After some discussion, it was moved by R. A. Ward and S. Acheson, that further discussion of this subject be deferred until a later time, and that we now take up the work according to the programme. Carried.

The subject, "How best may the Public School Department and the Local Associations Co-operate in Their Work?" was then taken up, and the following persons offered carefully thought-out suggestions: Mr. W. D. Spence, St. Mary's; Mr. J. D. Curtis, Glen Allan; Mr. C. E. Kelley, Hamilton; *Mr. A. H. Musgrove, Wingham; Mr. J. C. Linklater, Gananoque; Mr. H. A. Beaton, Walkerville; Mr. J. C. Painter, Jordan Station; Mr. J. B. Dobson, Pictou; Mr. J. C. Spence, B.A., Ottawa.

It was moved by R. A. Ward and G. A. Cole, that the papers read on this subject be placed in the hands of the incoming secretary, Chas. G. Fraser, to prepare a summary to be included in the minutes of the Association. Carried. (See page 54).

Professor McCready, of the O. A. C., then extended the members a cordial invitation to join in the excursion to Guelph to visit the Agricultural College.

Mr. R. A. Ward explained why the Resolutions of the Public

Mr. Musgrove being unable to be present, Mr. R. A. Ward read his paper.

School Department were not distributed to the various Local Associations as in former years, and that they had been published in the Educational Journals of the Provincee.

On motion of R. A. Ward and W. J. Hendry, it was carried to appoint a Look-out Committee, consisting of J. T. Curtis, Glen Allan (Convener); W. D. Spence, St. Mary's; J. Bennett, Toronto; L. H. Luck, Deseronto; J. B. Spence, B.A., Ottawa, and Secretary Fraser, Toronto, whose duty it would be to select the ablest teachers of the various inspectorates to bring the matters of this Department before their Associations, as suggested by Mr. Curtis. Carried.

The discussion of Mr. Harper's motion regarding the number of trustees in rural sections was then taken up and the amendment was carried.

Mr. S. McAllister, seconded by W. J. Hendry, introduced the following resolution.

Whereas, it is desirable to impress on our Federal and Provincial Governments, and upon our local municipalities the duty of preserving the important historical landmarks of our country as object lessons in history, whereby the present and future generations of Canadians may the more clearly realize the struggles, the sufferings, and the sacrifices, by which Canada was saved to the Empire and became a great corner-stone in its fabrie, and

Whereas, as examples of the early stockaded forts of this continent and as illustrations of the history of military engineering, the old forts at Toronto and Niagara possess a high educational value apart from their interest as glorious monuments of the British and Canadian soldiers who successfully did their duty in the progress of civilization, when the Motherland was the champion of the cause of freedom against the armed strength of two continents.

Whereas, in the United States, in Europe, and in the Motherland such sites are recognized as notable influences on the national life and character, and in some instances are considered as public trusts; and

Whereas the City of Toronto has definitely received from the Government of the Dominion of Canada the historic grounds of old Fort York, which were asked for by the City in 1889 as a public historical trust, and granted in 1903 by an Order-in-Council that plainly transfers them as a historical trust, or, if we may use

the words of a resolution passed at a meeting of the citizens of Toronto last October, "a sacred trust not merely for the citizens of Toronto, but for the people of the Province and of the Dominion at large";

And whereas the very conditions upon which this historic site was transferred to the keeping of the city by the Dominion Government were the preservation of this Fort as one of our oldest landmarks;

Be it resolved:

That the Public School Department of the Ontario Educational Association learns with regret that attempts are now being made to alienate these sacred grounds to purposes which would destroy their value as historic landmarks, and commends the protection of these grounds to the vigilant care of the first city of Ontario; and further, it would point out to the City Council of Toronto the obligation under which they are to the people of Canada faithfully and honorably to fulfil the terms and conditions of the great trust they have undertaken to preserve these forts to posterity. Carried.

The Report of the Committee on Resolutions was then presented by Mr. S. McAllister, the Chairman of the Committee.

1. The resolution of the Teachers' Association for Lennox and Addington *re* the length of the school vacation in rural sections should have been referred to the Trustees' Department.

The Committee reported against the resolution.

2. The Committee also reported against the proposal to increase the number of trustees in each rural section to six. The Minister's pronouncement in favor of Township Boards of Trustees offered far greater advantages.

The report was adopted.

On motion of Chas. G. Fraser and H. Ward, it was carried that the resolutions of this Department which were passed last year be re-affirmed.

On motion of S. McAllister and Wm. Linton, it was carried, that the Executive of this Department act as a Legislative Committee to interview the Honorable the Minister of Education to express the opinions of this Department regarding changes in the new Bill now before the Legislature and to guard our interests during the year.

On motion of Chas. G. Fraser and S. McAllister, it was carried

to grant the usual allowances to the officers for the past year—the Secretary, the Treasurer, and the Minute Secretary.

Mr. C. E. Kelley, the President-elect, was then introduced and formally installed in office by the retiring President, Mr. J. Bennett.

President Kelley thanked the Department for the honor it had conferred upon him, and expressed the hope that he would fill the chair as acceptably as his predecessor in office.

It was then moved by Wm. Linton, and seconded by S. McAllister, that the hearty thanks of this Department be tendered to the President and the other officers of the past year who were retiring. Carried.

Replies were made by Past-President Bennett and Secretary Ward.

Mr. H. Ward, the Vice-President-elect, was then introduced to the meeting.

On motion of J. Bennett and S. McAllister, it was carried, that this Department of the Ontario Educational Association recommends the General Association to set apart at least one-half day for the conducting of general business.

On motion of S. McAllister and T. E. Langford, the Secretary was instructed to write Mr. N. Gordon, P.S.I., Orangeville, Treasurer of Dufferin Teachers' Association, asking him to remit the grant of \$2 which was passed by that Association some months ago.

The meeting then closed, all joining in singing the National Anthem.

J. A. SHORT, *Minute Secretary.*
CHAS. G. FRASER, *Secretary.*

RESOLUTIONS, 1906.

1. That no certificate to teach, except as an assistant, be granted to any person under 21 years of age.
2. That the term of the Model School be lengthened to at least eight months.
3. That the Principal of a Model School should be the supervisor of the schools of the centre in which it is situated and he should be relieved of all other work.
4. That the number of Model Schools should be materially reduced by a redistribution of the Model School districts, and that the Legislative grants to these schools should be materially increased.
5. That graduates of the Normal College who have not been trained at a Model School or a Provincial Normal School should not be permitted to teach in a Public School.
6. That specialists' certificates and Public School inspectors' certificates be granted as previous to 1897, and that for the latter an experience of ten years' teaching be required, of which at least five years shall have been in a Public School.
7. That Latin be not a compulsory subject for senior leaving certificates for those who received their junior leaving certificates before 1897; but that the options be the same as before Latin was made compulsory.
8. That a candidate for a senior leaving certificate who holds a second class certificate and is not in attendance at a High School or Collegiate Institute, but is engaged in teaching, should be allowed the option of writing on any two or more subjects in one year.
9. That in the preparation of all Public School text-books Public School teachers should be consulted.
10. That the present "Practical Speller," on account of its method of arrangement and the large number of unfamiliar words selected—words that are seldom used—is unsuited to the use of Public Schools, and that it should be replaced by a more suitable text.

11. That the Ontario Readers, after twenty years of service, should now give place to a set of Readers that would reflect more correctly our nationality of to-day; that would be more in accord with educational principles in character of matter, arrangement and adaptation to the needs of the various grades; and that would be models of excellence in illustration, type, paper, and binding.

12. That the Truancy Act of 1891 should be amended in the following particulars:

(a) That the appointment, payment and full control of truant officers should be vested in the school boards or boards of education.

(b) That the truant officer should be permitted to deal directly with pupils as well as with their parents, in certain cases.

(c) That on the joint recommendation of the truant officer and the principal, the school board should have full power to commit to an Industrial School any pupils who are a decided detriment to the school morally, and that the expenses of all pupils committed thereto, whose parents are too poor to pay, should be paid by the Government.

13. That the Education Department be requested to make the school year end on the 30th of June, and to have the annual reports of the pupils' attendance made out accordingly.

14. That principals of Continuation Schools where at least two teachers are engaged exclusively in work beyond the entrance examination, should be members of the entrance boards.

15. That the interests of education in the rural schools would be best served by having boards of five trustees to manage the school affairs of each township.

16. That a provincial system of superannuation for teachers, directed and aided by the Government, should be adopted, and that the whole teaching body of the Province should be required to contribute to the funds thereof.

MINUTES OF THE KINDERGARTEN DEPARTMENT.

TUESDAY, APRIL 17TH, 1906.

The Kindergarten Department of the Ontario Educational Association held its first session this morning in the Ladies' Reading-room.

The attendance was very gratifying, representatives from various Kindergarten centres being registered.

After the reading of the Minutes of the last convention by the Secretary, Miss Currie, who presided at the meeting of the session, in a few well chosen words of welcome, introduced to the audience Miss C. C. Cronise, of the Kindergarten Institute, Chicago, who gave an exceptionally fine paper on "Art," quoting freely from Ruskin, Morris and many others. "Art" was shown to be a very vital and indispensable part of life's education. Its application to child life would mean that the surroundings of children should be beautiful, simple and wholesome, never luxurious. Throughout the paper suggestions were given for the guidance of children's crude expressions to that of a more artistic and beautiful expression which properly belongs to the later stages of growth.

The afternoon session was opened by the President, Mrs. Hughes. A very valuable paper was given by Miss Alice A. Harding, of Toronto, on "Natural Methods in Teaching Music." Methods suggested were very satisfactorily applied in a lesson in which the members formed themselves into a class, Miss Harding teaching. (See page 431).

Miss Jean R. Laidlaw, of London, opened a discussion on "Rhythm, Its Value in Kindergarten Work." The only debatable point was stated to be the question of free rhythms, and it was held that while for younger children the rhythmic training is derived through representation, birds, horses, etc., for older children the music itself can make the suggestion.

WEDNESDAY, APRIL 18TH, 1906.

The Department met at 9.30 a.m. The President conducted the opening exercises, after which the Minutes of the previous day were read and confirmed.

Mrs. Hughes, with only a limited time at her disposal, outlined the work of the "Committee of Nineteen." Psychology, Symbolism and Methods of Work (the latter including the programme) were the three great divisions of research, and under these divisions committees were organized. The meetings of this Committee have done much to harmonize the views of the leaders in the Kindergarten field, who have seemed to see opposite sides of the shield. On the one hand, it is held that environment determines character, and on the other that the soul is self-making, and that the environment is relatively unimportant.

"The Essential Conditions of Interest" was the subject of a most valuable paper given by F. W. Merchant, D.Pæd. (This will be found on another page.) Words of appreciation for his able assistance in our programme were tendered Dr. Merchant by Mrs. Hughes.

Reports of Kindergarten Work from the various centres were most encouraging. Stratford, Listowel, Chatham, Brantford, London, Toronto, Ottawa, Hamilton and Waterloo reported good work being accomplished. We were pleased to hear that in the very near future a Kindergarten is to be opened in Collingwood.

The afternoon session consisted of a practical lesson in clay modeling for children, conducted by Miss O. C. Cronise, the members making the objects as the lesson proceeded. Many novel and stimulating ideas were suggested during the afternoon.

THURSDAY, APRIL 19TH, 1906.

After the reading of Minutes of previous day, the election of officers took place, resulting as follows:

<i>President,</i>	-	-	Miss Grace Johnstone, Stratford.
<i>Director,</i>	-	-	Mrs. Adeline M. Hughes, Toronto.
<i>Secretary-Treasurer,</i>	-	-	Miss Clara Brenton, London.

It was suggested that at future meetings several successive sessions be devoted to one topic; the subject of "Stories" was mentioned for 1907.

After a discussion of present regulations regarding the Assistants' Examinations, a Committee was appointed, with Miss Laidlaw as chairman, to have all the Kindergartners of the Province sign a memorial to the Minister of Education, requesting a return to a uniform standard.

A very interesting Round Table on the "Dangers and Advantages of Greater Freedom in Work" was conducted. Papers were given by Miss Katherine Currie, of Waterloo; Miss Lilian Dent, of Toronto; Miss Maud Lyon, Ottawa, and Miss Minnie McGuire, of London. A most animated discussion followed, in which many participated; among the number were Miss McIntyre, of the Normal School; Miss Semple, Art Supervisor in Toronto Schools, and Mrs. Hughes.

The Department adjourned at noon to meet with all Departments and Sections for the afternoon joint meeting.

CLARA BRENTON, *Secretary.*

MINUTES OF THE TRAINING DEPARTMENT.

TUESDAY, APRIL 17TH, 1906.

The Training Department of the Ontario Educational Association met at 10.15 a.m. in Room 8, of the University of Toronto.

The opening exercises were conducted by Mr. W. E. Groves, Chairman of the Department, after which he read a very thoughtful and instructive paper on "Physical Training."

A Committee composed of Messrs. Broderick, Linklater and Groves was appointed to bring in a report on Physical Training at the next meeting of this Department in 1907.

Mr. T. A. Reid, of Owen Sound, then read a carefully prepared paper on the "Psychology of Spelling." An interesting discussion followed by Professor Hume, Dr. Merchant and Messrs. Suddaby, McIntosh and Groves.

On motion the meeting then adjourned.

WEDNESDAY, APRIL 18TH, 1906.

The Department met at 9.30 a.m. The Chairman conducted the opening exercises.

A resolution was passed approving of the Minister's idea of fixing a minimum salary for Public School teachers.

The Department entered into a long discussion on the New Regulations, especially as they effect Model School masters.

The election of officers for the ensuing year then took place, resulting as follows:

<i>Chairman,</i>	-	-	John Dearness, M.A., London.
<i>Secretary,</i>	-	-	Wm. Wilson, Toronto Junction.
<i>Director,</i>	-	-	G. E. Broderick, Lindsay.

Professor S. B. McCready, of Guelph Macdonald Institute, then discussed the following topic, "Some Attitudes of Departments of Education, Inspectors, Trustees, Teachers and the Public Towards Nature Study."

A hearty vote of thanks was tendered Mr. McCready for his excellent address.

The meeting then adjourned to the Psychological Laboratory, where the members listened with pleasure and profit to Professor Abbott, his subject being Psychology.

THURSDAY, APRIL 19TH, 1906.

The Department met at 8.45 a.m. The Chairman conducted the opening exercises.

Miss Semple, Supervisor of Drawing in Toronto Public Schools, exemplified her method of teaching the subject.

The thanks of the meeting was tendered Miss Semple for her practical address, after which Mr. L. Rees discussed the subject of Music to the very great interest of all present.

The convention of 1906 was then closed.

W.M. WILSON, *Secretary.*

MINUTES OF THE INSPECTORS' DEPARTMENT.

TUESDAY, APRIL 17TH, 1906.

The meeting of the Inspectors' Department was opened at 10 o'clock a.m., Rev. W. H. G. Colles in the chair.

Inspector Knight, of Lindsay, opened the meeting with prayer.

The fee for this Department was by resolution raised to \$1.00 per member.

Moved by Mr. D. Fotheringham, seconded by Mr. W. J. Summerby, that speakers in discussing any subject be limited to five minutes. Carried.

John Dearness, of London Normal School, then gave a very interesting paper on "The Best Way to Inspect a Public School." The paper was by resolution requested to be printed in the Proceedings.

WEDNESDAY, APRIL 18TH.

The meeting was called to order at 9 o'clock, and opened with prayer by President Colles. Forty-seven inspectors present.

The President gave an interesting and profitable address on Public School matters, calling especial attention to continuation classes.

Moved by Mr. W. Carlyle, seconded by Mr. C. B. Edwards, that the officers of the Department be elected by ballot without nomination, and that the one elected get a majority vote of those present qualified to vote. Carried.

The officers elected for 1906-7 resulted as follows:

<i>President,</i>	-	-	-	W. H. Stevens, B.A., Lindsay.
<i>Secretary,</i>	-	-	-	W. I. Chisholm, B.A., Kincardine.
<i>Director,</i>	-	-	-	T. W. Standing, B.A., Brantford.

Dr. J. Waugh, of Whitby, gave an address on the subject, "How to Enlarge Our Sphere of Influence." He dealt with the working of the standing committees on salaries, the Superintendent of Education, and called attention to the great differences in Public Schools, showing that all schools cannot be treated alike, but that the Inspector must use his best judgment in dealing with each school.

In the afternoon Mr. W. Scott, of the Toronto Normal School, gave a most valuable paper on "Initial Nature Study in Public Schools." The paper was by resolution requested to be printed in the Proceedings.

The meeting adjourned to a joint meeting with the Trustees and Inspectors.

THURSDAY, APRIL 19TH.

At nine o'clock a.m. meeting called to order, with President Colles in the chair. Proceedings opened with prayer by the President.

The first order of business was the discussion of various school problems with the Minister of Education. The discussions resulted in the following resolutions:

Mr. W. I. Chisholm moved, and Inspector Moshier seconded, that the bases of division of legislative grants, as proposed in the Education Bill now before the House, be approved of by the Inspectors' Department. Carried.

Mr. J. C. Brown, seconded by Dr. McDiarmid, that the equalization of cost of Public Schools between sections, as in the proposed bill, be approved by this Department. Carried.

Moved by Mr. N. W. Campbell, seconded by Mr. J. H. Smith, that the grants to continuation classes should be increased, and that grants be not confined to an average attendance of three, but be given for one, or two, or three. Carried.

Moved by Mr. William McIntosh, seconded by Mr. F. S. Michell, that Mr. D. J. McKinnon, at one time Public School Inspector in the County of Peel, be made an honorary member of this Department. Carried.

Mr. J. H. Knight moved, seconded by Mr. J. C. Brown, that Messrs. Craig, Tilley, Moshier, Waugh, Lees, and McLaughlin be a Committee to interview the Minister of Education, and advise with him regarding school matters in the Education Bill now before the Legislature. Carried.

The Inspectors' Department then adjourned to a joint meeting of all the Departments to consider Dr. Sinclair's resolution left over from 1905.

W. H. STEVENS, *Secretary, Lindsay.*

MINUTES OF THE TRUSTEES' DEPARTMENT.

FIRST SESSION.

TUESDAY, 17th April, 1906.

The Twentieth Annual Convention of the Public and High School Trustees of Ontario began at University College, Toronto, at 2 p.m.

After the registration of Delegates, the President, A. Werner, Esq., took the chair.

Messrs. Moore, of Acton, and Rev. Mr. Bell, of Laurel, were appointed to report to the press the daily proceedings.

The Minutes of the Proceedings of this Department, 25th, 26th, and 27th April, 1905, as printed in pamphlets, were taken as read, and on motion were adopted.

Mr. S. Martin, of Bradford, and Rev. J. R. Bell, of Orangeville, were appointed Auditors.

The following report of the Treasurer was read, received and referred to the Auditors:

SUMMARY.

Receipts—		
Balance from Audit of April, 1905	\$25	39
Paid in by Boards and Delegates.....	133	50
Legislative grant		50 00
Total		\$208 89
Expenditure—		
Fees paid to Ontario Educational Association.....	\$44	50
Printing pamphlets and circulars	57	10
Distribution of pamphlets, letters and circulars	16	25
Salary		75 00
Total		\$192 85
Balance, \$16.04.		

GEORGE ANSON AYLESWORTH,
Treasurer.

Newburgh, 14th April, 1906.

SECRETARY'S REPORT.

1. In May, 1905, was organized for the County of Victoria an Educational Association with an active Trustees' Department (see "Trustees' Proceedings," 1905, Supplement, p. 39).

2. The Public School Department has sent to this, a copy of a Resolution of the West Grey Teachers' Convention, dealing with details of the admission of young children to the Public School. (See below).

3. Official notice is given of a joint-meeting of all the Departments and Sections, to be held Thursday, 19th April, 2 o'clock p.m., to consider Dr. Sinclair's resolutions, dealing with the fixing of a minimum salary for Public School teachers, and ten other proposed changes in the School Laws. (See "Ontario Educational Association Proceedings," 1905, p. 11).

4. Mr. Farewell, LL.B., etc., notifies me under date of 12th April, 1906, that he will not be able to prepare a paper on the subject assigned to him on this year's Programme. He suggests that Mr. Kelso, of the Neglected Children's Department, fill in the allotted time on the Topic "Neglected Children and Truancy."

GEO. ANSON AYLESWORTH,
Secretary.

Newburgh, 16th April, 1906.

RESOLUTIONS PASSED AT THE WEST GREY TEACHERS'
CONVENTION.

Whereas the minimum age of five years at which a parent can claim for his child the right of admission to the Public Schools has, in the experience of teachers, been detrimental to the best interests of the child and the school, chiefly from two causes: 1. The practice of sending beginners at any and all times to the disturbance of the organization of primary classes. 2. The practice of sending children to school at the age of five years, without consideration of the child's development.

Be it resolved:

1. That, in the opinion of this Association, discretionary powers should be given School Boards as to the times during each year at which beginners may be started to school.

2. That discretionary powers be given teachers as to the part of the primary course which the child shall take during the first six months as a preparation for the regular course in reading, spelling, writing and number work.

(Signed), JAS. H. PACKHAM, *Secretary.*
Owen Sound, January 24th, 1905.

On motion the Report of the Secretary was received, and ordered to be recorded in the minutes.

After discussion, the following were appointed to name a committee who should submit to the Hon. the Minister of Education all such matters as may be determined upon for that purpose by this Department; this nominating committee to report to-morrow (Wednesday) morning, viz.: Messrs. Farewell, LeSueur, and Kelly.

Messrs. T. McGuire and P. M. Cote, representing Ottawa Separate School Board, were accepted into membership in this Department. Nem. con.

The President, Mr. A. Werner, representing Berlin Collegiate Institute, read his address. (See page 323).

The President's Address was received and referred to a Committee composed of John I. MacCraken, B.A., Ottawa, Rev. John Atkins, Alvinston, and H. P. Moore, Acton, who later reported as follows:

Your Committee on the President's Address have pleasure in complimenting him upon the same; and appreciate his efforts to create enthusiasm on the part of all trustees in the importance of this Department of the Association so that a more general attendance may be secured. We cordially recommend the publication of the same in full in the annual Report.

(Signed) JOHN I. MACCRACKEN.
JOHN ATKINS.
H. P. MOORE.

On motion the Report of the Committee was received and adopted.

Pursuant to appointment at last convention the Secretary reopened the discussion on "Teachers' Contracts" with a paper: (See page 329)

It was moved by Mr. Huston, of Exeter, seconded by Mr. LeSueur, of Sarnia, and resolved the Secretary's paper be received, recorded, and printed in the Proceedings.

Lt.-Col. Anderson, of Ottawa, gave notice of motion regarding Municipal levies for Public School purposes.

The excursion to Guelph on Friday, 20th April, was officially announced.

Mr. Newton Smale, of Victoria County, briefly addressed the Convention, as to the County Educational Association organized at Lindsay last May.

After Rev. Mr. Bell, of Orangeville High School Board, had spoken of the system of County Scholarships, the session ad-

SECOND SESSION.

WEDNESDAY, 18th April, 1906.

9 o'clock a.m.

The following report of the Auditors was, on motion, received and adopted:

"We have examined the Treasurer's books for 1905-6, and found vouchers for all moneys received and paid; and the books neatly and correctly kept. Balance in Treasury, \$16.04."

(Signed) J. R. BELL,
S. MARTIN,
Auditors.

Toronto, 17th April, 1906.

The following were elected Officers for 1906-7:

President—C. W. Kelly, Guelph.

Vice-President—L. K. Murton, B.A., Oshawa.

Secretary-Treasurer—George Anson Aylesworth, Newburgh, Bay of Quinte Ry.

Executive Committee—The above named officers and John H. Laughton, Parkhill; M. Parkinson, Toronto; F. W. Wright, St. Thomas; John Maegillivray, Ph.D., Kingston; M. B. Tudhope, B.A., Orillia; John Anderson, Arthur.

Pursuant to notice it was moved by Lt.-Col. Anderson and Mr. Breadner, both of Ottawa, that it be an instruction to the Standing Committee for interviewing the Hon. the Minister of Education, to urge upon him the advisability of amending the Public School Act and the Municipal Act so that the whole amount of taxes raised by Municipal Councils for school purposes, shall be accounted for and paid by the School Boards.

The motion was carried.

Mr. J. G. Elliott, Kingston, read a paper on "Citizen-making, the Mission of the School." (See page 331).

It was moved by Messrs. Wright and Martin, and resolved, that

the paper read by Mr. Elliott be received with thanks, and printed in the Proceedings.

Mr. Menzies and Dr. Howey, of Owen Sound, submitted a motion that the President appoint a Committee to nominate the delegation to wait upon the Minister of Education, the President and Secretary to be *ex-officio* members of the said delegation.

After an informal discussion of the proposed composition of the new Advisory Council of Education, the motion was carried.

Mr. A. H. Leake, Manual Training, Art and Technical School Inspector, addressed the Convention.

On motion of Messrs. Lazier and Wallace, the thanks of the Convention were conveyed to Inspector Leake for his instructive address.

After some announcements and notices of motion, the session adjourned.

THIRD SESSION.

WEDNESDAY, 18th April, 1906.

The Convention resumed at 2.15 p.m. Upon the report of the special nominating Committee, the following members of this Department were appointed as a delegation to interview the Minister of Education, and to submit to him the various findings and recommendations of this Convention:

Mr. J. B. Dow, B.A., President of the Ontario Educational Association; Mr. A. Werner, President of this Trustees' Department; Mr. Aylesworth, Secretary, and Messrs. Rutherford, of Dufferin County; Graham, of Lambton County; Rev. Dr. McLeod, of Simcoe County; MacCraken, of Ottawa; Dr. Howey, of Grey County; Huston, of Huron County; Ormiston, of Ontario County; Elliott, of Kingston; Kelly, of Guelph; Laughton, of Middlesex County, and Parkinson, of Toronto.

It was moved by S. R. Brill, Teeswater, and seconded by Rev. John Atkins, Alvinston, that the Delegation appointed to wait on the Minister of Education be requested to urge the necessity of greater aid being given to Schools doing Continuation class work.

The motion was carried unanimously.

The Inspectors' Department joined with the Trustees' to hold

a union discussion of "Rural Schools, and How to Improve Them."

Mr. W. H. G. Colles, Inspector of Public Schools, East Kent, read a paper on, "The Condition of Rural Schools, and How to Improve Them." (See page 338.)

At the conclusion of Mr. Colles' paper, Mr. John H. Laughton, Chairman of the Park Hill Board of Education, read a paper on "Rural Schools, and How to Improve Them."

On motion of Past President Farewell, of the Trustees' Department, and Inspector MacIntosh, the thanks of the meeting were tendered to Inspector Colles and Mr. Laughton, and the papers they presented were received, and ordered to be printed.

Mr. J. J. Kelso, Superintendent of Neglected and Dependent Children of Ontario, addressed the Convention.

At the close of Mr. Kelso's interesting address, it was suggested that if possible Mr. Kelso be induced to deliver an address to the general Association at one of the evening meetings next year.

On the nomination of the Executive Committee, Mr. John H. Laughton, Chairman of the Park Hill Board of Education, was elected Director from this Department to the Executive of the Ontario Educational Association.

On motion of Messrs. Farewell and Laughton, the following resolution was adopted unanimously:

This Association desires to impress upon the Federal and Provincial Governments and upon local municipalities the duty of preserving the important historical landmarks of the country as object lessons in history, whereby the children of future generations of Canadians may the more clearly understand the labors, sufferings, and sacrifices by which this country was protected and built up to become the great corner stone it now is in the fabric of our Empire.

As examples of the early stockaded forts of this continent and as illustrations of the history of military engineering the old forts at Toronto and Niagara possess a high educational value apart from their interest as glorious monuments of the bravery of British and Canadian soldiers who successfully held this country for the British Crown during a period when the Mother Country was battling with the nations of two continents.

Seeing with what care such reliques are preserved in the Mother

Country, in Europe and in the United States, and recognizing the influence they have upon national life and character, this Association learns with regret that attempts are now being made to alienate these sacred grounds to uses which would destroy their value as historic landmarks.

This Association commends the spirit of the resolution passed at a public meeting of the citizens of Toronto last October, which set forth that "the preservation of these historic grounds should be considered a sacred trust, not merely for the citizens of Toronto, but for the people of the Province and Dominion at large," especially as their preservation was a condition upon which the fort was transferred to the keeping of the city by the Dominion Government, and the Association trusts to the vigilant patriotism of the capital city of Ontario to see that this solemn obligation is fulfilled.

The Convention adjourned for the day.

FOURTH SESSION.

THURSDAY, 19th April, 1906.

The Convention re-assembled at 9.30 a.m.

A delegate asked whether the municipal auditor had a right to disallow and cut out from the School Board's accounts the item for the expenses of delegates sent to this Association? It was held that if the delegation were appointed at a regular meeting of the School Board, the item of that delegations' travelling expenses was legitimate and proper to be paid by the School Board, and ought not to be disallowed by the auditor, nor objected to by any one.

It was moved by Mr. W. D. Euler, and seconded by Mr. LeSueur, and resolved, that the committee appointed to interview the Minister of Education, be instructed to urge upon him the necessity of making provision for the effective teaching of Writing by the official adoption of a muscular movement system; the giving of more time to the subject in both Public and High Schools, and proper preparation of teachers in the training schools of the Province, to teach this subject.

Moved by J. G. Elliott, seconded by F. W. Wright, and resolved, that an honorarium of \$75.00 be paid to our excellent

and painstaking Secretary, G. A. Aylesworth, who has so faithfully and so long performed the duties of that office.

Mr. L. K. Murton, B.A., read a paper on, "Continued Education by Means of Free Libraries and Kindred Institutions."

Moved by J. G. Elliott, seconded by H. P. Moore, that the admirable paper presented by Mr. Murton, be printed in the minutes of this Association; and the writer thanked for his valuable researches and information imparted.

Mr. C. W. Kelly, Guelph, presented a paper on, "Results of the Consolidated School at Guelph."

It was stated as an illustration of low school rates that in one section a Professor was assessed at \$1000 on income; he was assessed also for a dog, on which he paid \$1.00 annually as dog tax. The school-rate for that section being nine-tenths of a mill in the dollar, the Professor had to pay 90 cents to educate his boy—and \$1.00 for his dog!

Mr. Parkinson led the discussion on Consolidated Schools in a stirring address. As he was pointing out how the Consolidated School becomes the centre of social influence for its whole community, Mr. John Anderson asked "Where's the money to come from?"

Mr. Parkinson: "From the dog tax."

Mr. Anderson: "We don't want you to become too dogmatic."

One delegate expressed the opinion that it would be best first to make good roads, and then establish Consolidated Schools. Another objected to this idea, the question, "How does the child get there now?"

Mr. Hodgson, Principal of the Macdonald Consolidated School, briefly addressed the convention. He said, "The smaller children come as regularly in winter as in summer. The Townships clear the roads. The pressing problem of the day is 'a more fit education for rural people.'"

After discussion it was unanimously resolved that the committee appointed to wait on the Minister of Education impress upon him the desirability of having prepared and placed in the hands of every Rural School Board in the province a circular setting forth the advantages and present status of Consolidated Rural Schools in Canada and the United States.

Moved by Mr. Todd, seconded by Rev. Mr. Bell, and resolved that the paper presented by Mr. Kelly, be printed in our pro-

ceedings; and that the thanks of this Convention be tendered to Mr. Kelly; and also to Mr. Parkinson.

On motion of Rev. W. T. Wilkins, and Mr. Parkinson, the following report was adopted:

The committee to which the papers "On the condition of our Rural Schools and how to improve them," read by Inspector Colles and Mr. J. H. Laughton, at the conference held yesterday between the Public School Inspectors and the Department, were referred, with instructions to frame a deliverance regarding them to be submitted for consideration this morning, begs to submit the following: "That this Department would place on record an expression of the pleasure afforded it by the reading of these carefully prepared papers, and instructs its Secretary to see that arrangements be made for printing them, or as full abstracts as possible, in the Proceedings of the Association: with regard to the recommendations contained in them, would, without committing itself to all the details of the same, express its general approval of them; and in order to more effectually bring before the Minister of Education these recommendations, and any others which from time to time in the opinion of this Department it may be desirable to submit for his consideration with a view to improve the condition of our public schools, it would strenuously urge upon the Honorable the Minister of Education that, inasmuch as at least 90 per cent. of the children of Ontario receive all their scholastic training in our public schools, adequate representation should be given to the public school teachers, the public school Inspectors, and the Trustees' Department of the O. E. A. on the permanent Advisory Committee it is proposed to establish; and that in such representation there should be at the very least two representatives from the Trustees' Department of the O. E. A., to be nominated by said Department in such manner as may hereafter be determined.

Wm. THOS. WILKINS,
M. PARKINSON,
JOHN MEISNER.

Moved by J. G. Elliott, seconded by John Anderson, that this Association regret the absence from its gathering, this year, of the old familiar form of Col. Deacon, one of the fathers of this institution. For many years his happy and cheery manner was a source of delight and pleasure to the delegates, and his witty, still

practical, remarks were always helpful in reaching wise conclusions. In his retirement from the activities of public life, and especially from this Trustees' Department, your Association deplores the loss and it wishes him in future days a time of quiet enjoyment and happiness. That a copy of this resolution be transmitted to Col. Deacon by the Secretary.

Mr. C. W. Kelly, President for 1907, took the chair.

On motion of Messrs. Anderson and Todd, a standing vote of thanks and appreciation, accompanied with the singing out "He's a jolly good fellow," was adopted by the Convention, and tendered to Mr. Werner, the retiring President.

Rev. Mr. Wallace suggested as a suitable topic for discussion at our next Convention, "Capital Outlay for Buildings and Equipment of High Schools, should it be borne by the Local Municipality Alone?"

The Convention was closed, the Rev. Mr. Wallace, at the request of the chair, pronouneing the Benediction.

MINUTES OF THE HOME SCIENCE SECTION.

The third annual meeting of this section was held April 18th, 1906, Miss Benson in the chair.

The Secretary-Treasurer read the minutes and financial report of previous year. Both were received.

Miss Ewing was appointed press reporter.

The President's address followed. She spoke of the present course of study in Home Science, and the need of a wider knowledge of Dietetics.

Professor Harcourt, O.A.C., gave a report, "Recent Breakfast Food Investigations," a synopsis of which appears in the Proceedings.

Miss Doan read a very comprehensive review of Professor Chittenden's book, "Physiological Economy of Nutrition," the latest authority on Dietetics.

Adjournment at 12.

The afternoon session opened with an address by Mrs. Hoodless, on the "Course of Study in Home Science in the Public

Schools." Short discussions followed by Misses Butchart, Greenwood, Macpherson, Pooke, Reynar, Watson, and Robertson.

Miss Ewing's report followed. She found that the consensus of opinion from Home Sciencee teachers was that the course outlined is too full for the allotted time.

Miss Benson drew the main points together in a concise form, and, after further discussion, the meeting adjourned.

A business meeting was held on April 19th at 10 a.m. The names of Misses Ewing, Fisher, and Roberston were added to the standing Committee on the Course of Study, to replace some who had dropped out. The convener was authorized to call a meeting during the early summer.

It was moved by Miss Robertson, seconded by Miss Ewing, that the following be appointed to confer with Mrs. Hoodless in reference to Home Sciencee in the field at large: Misses Benson, Davidson, Macpherson, and Watson, with power to add to their numbers. Carried.

A paper by Mr. W. L. Richardson, "The Essential Prineiples of Home Furnishings," followed. This is printed in the Proceedings.

Elections followed, resulting in :

<i>Honorary President,</i>	-	Mrs. Hoodless.
<i>President,</i>	-	Miss. M. U. Watson.
<i>Vice-President,</i>	-	Miss A. Butchart.
<i>Secretary-Treasurer,</i>	-	Miss I. C. Marshall.
<i>Councillors,</i>	-	Misses Benson, Davidson, Ewing, Fisher, Kingston, Laird, Pooke.

MINUTES OF THE MANUAL ARTS SECTION.

TUESDAY, April 17th, 1906.

The Manual Arts Section of the Ontario Eduueational Association met in Lecture Room No. 3, of Toronto University.

The President, Miss Semple, ealled the meeting to order at 10.20 a.m. As the Minutes of the meetings of 1905 had been printed in the Annual Proceedings, it was moved by the Secretary,

seconded by Mr. J. Brennan that these be taken as read and adopted. Carried.

Communications were read from Mr. G. C. Creelman, inviting the members to visit the Ontario Agricultural College on Friday, 20th inst. Also one from Mr. S. K. Davidson, of London, enclosing fee and stating his inability to attend the meetings this year.

Mr. Leake and Miss Semple made explanations relative to the preparation of this year's programme.

Mr. C. F. Errett suggested that photos of work done in various schools be obtained and exhibited at the annual meetings and that a press or literature bureau be established for the purpose of collecting and filing information relative to the Manual Arts.

Mr. J. W. Plewes having arrived, Miss Semple called on him for his paper on "Manual Training in Ungraded Schools."

As the hour for the next paper had arrived, it was decided to postpone discussion of Mr. Plewes' address until later.

Mr. J. L. Banks then made a few remarks on the suitability of clay as a medium for handwork and art expression in schools. He then gave a demonstration in which he modelled a head in low relief, a head in the round, a historical unit, a piece of historic ornament with the unit as motif and finally a piece of pottery. An interesting discussion followed in which Miss Semple, Mr. Leake, Mr. Wilkinson, and others took part. The Section then adjourned for lunch.

AFTERNOON SESSION.

The Manual Arts Section met at 2 p.m., in the Toronto Normal School.

Mr. J. H. Wilkinson gave a detailed explanation of the work done by the Model and Normal School students. This was illustrated by exhibits of work. Questions were asked and answered.

At 3 p.m., Principal Scott, of the Normal School, gave a comprehensive address on the "Educational Value of Manual Training."

Discussion followed Mr. Scott's paper, to which Messrs. Richardson, Leake, Mercer, Keyes, and others contributed. The hearty thanks of the Section was unanimously accorded Mr. Scott

for his scholarly address, and it was decided to include the paper in the Annual Proceedings. After some further discussion the Section adjourned.

WEDNESDAY, April 18th, 1906.

The members of the Section assembled at 10 a.m., in Room 3, Toronto University.

The Secretary-Treasurer presented the Financial Statement for the year, showing a balance on hand of \$8.98.

The President named Mr. Jas. H. Wilkinson and Miss A. Rose as Auditors.

Accounts totaling \$4.92 were presented, and on motion of Messrs. Mercer and Snider were ordered to be paid.

Mr. C. F. Errett read a paper entitled, "Manual Training in Brantford." This was followed by a brief discussion.

Miss A. A. Harding read a paper, entitled, "Primary Constructive Work." Several members took part in the discussion which followed. Many questions were asked and answered.

AFTERNOON SESSION.

In the afternoon the Manual Arts Section met in the City Hall and, after viewing an Exhibition of Art Work done by the pupils of the Toronto Public Schools, Miss Semple explained the aims of the work, gave suggestions as to methods and a demonstration with paper and various media of the way to secure certain artistic results. Miss Semple, in answer to questions, gave further information relative to courses of study, order of presentation, available material, etc.

On motion by Mr. Leake, seconded by Mr. Wilkinson, the Secretary was instructed to write letters to all who had contributed to make the meeting successful.

It was moved by Mr. Wilkinson, seconded by Mr. Keys, that Miss Harding's paper be included in the Proceedings. Carried.

A motion by Mr. Richardson, seconded by Mr. Adams, that Mr. Errett's paper be included in the Proceedings, was lost, as many of the members did not agree with certain views held by Mr. Errett and feared that publication might be taken to mean endorsement.

The election of officers resulted as follows:

<i>Honorary President,</i>	-	Mr. A. H. Leake, Toronto.
<i>President,</i>	-	Mr. S. Pickles, London.
<i>Vice-President,</i>	-	Miss A. Rose, Guelph.
<i>Secretary-Treasurer,</i>	-	Mr. W. L. Richardson, Toronto.
<i>Councillors,</i>	-	Miss A. Powell, Mr. J. H. Wilkinson, Mr. Keys, Mr. C. Medcalf.

It was moved by Mr. Richardson, seconded by Mr. Leake, that an exhibition of work for next year be held in the University, and that the details of said exhibition be left to the Executive Committee. Carried.

A motion of thanks, by Mr. Snider, seconded by Mr. Tanton, to the retiring officers for their efforts to make the meeting a successful one, was carried unanimously.

After some informal discussion as to ways and means of making the meeting next year still more successful, the Section adjourned.

W. L. RICHARDSON, *Secretary-Treasurer.*

MINUTES OF THE HYGIENE SECTION.

The annual meeting was held in the Medical Building of the University on Wednesday, April 18th.

An excellent address on "The Training of Teachers in Hygiene" was given given by Dr. Colin Campbell, of London. A paper on "Mental Overwork in Schools" was read by Dr. Edward Ryan, and a paper on "Causes of Absence in Toronto Schools during March" by Dr. J. F. Goodechild.

Moved by Dr. Helen MacMurchy and seconded by Dr. Campbell, that Dr. A. P. Knight be appointed President for the coming year. Carried.

Moved by Dr. Campbell, and seconded by Dr. Maedonald, that Dr. H. MacMurchy act as Director for this Section. Carried.

Moved by Dr. MacMurchy and seconded by Dr. Ryan, that Dr. Reeve, Dr. Starr, Dr. Pepler, Principal Embree, Miss Millar, Principal Wm. Scott, Principal John Dearness, Principal W. E. Graves, be appointed as Executive. Motion carried unanimously.

Moved by Dr. MacMurchy, and seconded by Dr. Ryan, that the Secretary of this Association be requested to address a communication to the Secretary of the Ontario Medical Association and to the Registrar of the College of Physicians and Surgeons of Ontario, informing them of the organization of the Section of Hygiene and drawing their attention to the fact that all medical practitioners in the Province are invited and requested to become members and to further the objects of the Section, also to state that membership fee is \$1.00. Motion carried.

Moved by Dr. Knight and seconded by Miss Millar, that Dr. Ryan bring before the Hon. the Minister of Education the desirability of issuing Dr. Goodchild's report on "Causes of Absence in Toronto Schools during March," as a departmental paper and distributing it among the teachers of the Province, also Dr. Ryan's paper on "Mental Overwork in Schools."

Dr. Ryan was asked to impress upon the Minister the fact that fuller instruction should be given in Normal Schools in Hygiene than is given now in the ten lectures.

Moved by Dr. MacMurchy and seconded by Miss Millar, that Ryan's and Goodchild's papers be published by the General Association. The motion was carried.

Dr. Campbell was asked to give in written form a full outline of his address that the Association might publish it, and also that the Hygiene Section might lay it before the Minister of Education and impress upon him what are the essentials in the syllabus.

JOHN FLEMING GOODCHILD, *Secretary.*

FINANCIAL STATEMENT

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The Ontario Educational Association

1905-6

RECEIPTS :

Balance from last year	\$260 52
Membership Fees	451 00
Advertisements	175 00
Sale of Proceedings	76 25
Special Contributions	47 50
Grant, Ontario Government	600 00
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	\$1,610 27

PAYMENTS :

Expenses of Convention	\$14 50
Printing Circulars, Programmes, etc.....	155 92
Secretaries of Departments	60 00
Postage, Mailing, etc.....	162 75
Printing and Binding Proceedings	655 05
Board of Directors' Railway Fare, November.....	45 15
Trustees' Department, for Printing, etc	500 00
Lecturer, Prof. Moulton	100 00
Commission on Advertisements in Programme	23 75
Salary General Secretary	125 00
Salary Treasurer	30 00
Reporting Evening Meetings	44 25
Balance on hand	143 90
	<hr/>
	\$1,610 27

R. W. DOAN,
General Secretary.

W. J. HENDRY,
Treasurer.

We, the undersigned auditors, have the honor to report that we have carefully examined the books, orders, vouchers and financial summary of the Treasurer of the Association, and have found them correct in every particular. The balance on hand at the close of the fiscal year is \$143.90.

JOHN DEARNESS.
WM. LINTON.

GENERAL ASSOCIATION.

PRESIDENT'S ADDRESS.

Before commencing my address I wish to take the opportunity of thanking the Association very warmly for the very great honor it has paid me in electing me to the high office of President of this Association. I assure you that I most sincerely appreciate the honor, and my only regret is that I feel that I am quite unable to measure up to the high standard of those distinguished educationists who have been my predecessors in office. The meeting of the Association this year takes place at a very important juncture in the educational affairs of the Province of Ontario. Two bills of a far-reaching nature have been presented to the Legislature, and are now before it for discussion. These bills affect, in a very vital way, the interests that this Association has in its charge, and I presume that it will be quite natural that the discussion in the several departments of the Association at this meeting will very largely centre upon the provisions contained in these two bills. I want to make it perfectly clear at the outset that I do not pretend to address you from an academic or a professional standpoint. I speak to you entirely from the standpoint of a layman and a trustee whose knowledge of educational matters has been derived from having passed through the system as a student, and from observation of its workings while a member of a Board of Education. I leave it to those who are fitted, by training and by occupation, to discuss it from the academic or professional standpoint, and I wish to avoid altogether any attempt to speak to you from those points of view. I think that I may say that if a digest of the proceedings of this Association for the past ten years were made, it would be found to contain a very complete epitome of the best educational thought of the Province of Ontario, and that in it alone could be found ample material for those who have the administration of educational affairs to work upon in bringing in measures of reform and improvement in connection with the

educational system; and it will be only natural if we find—it is only what we might expect to find—that the bills now before the House contain an embodiment of conclusions and opinions that have been arrived at in the discussions that have taken place at the several meetings of this Association.

The first matter that I would draw your attention to is that some effort—some greater effort, at all events—should be made towards the nationalizing of education in Canada. I am aware that this project has been taken up and has made some progress, but I would like to see this Association take it up and actively and vigorously prosecute a campaign in its behalf until effect has been given to the idea in legislation. In our Canadian constitution the subject of education is assigned exclusively to the jurisdiction of the Provinces, while on the other hand the subject of trade and commerce is assigned to the exclusive jurisdiction of the Dominion Parliament. The division of jurisdiction in the United States is practically similar to ours, the several States being supreme in their control of educational affairs. Now, it seems to me, that it is somewhat anomalous, in view of the fact that educational methods, according to the notions that prevail to-day, are being bent and adapted to the needs of industry, and of trade and commerce, to such an extent that it would be only reasonable to expect that the Dominion Government, which has these matters within its own control, should contribute something toward the expense of carrying out these ideas, because the great difficulty in the way of faculties of applied science and technological schools is the matter of expense. I may say also in this connection that the Dominion Government is already committed to the principle by the establishment of the Department of Labor and the Government experimental farms. There we have an example of applied science directed towards the great industry of agriculture in this country. A very good beginning towards this end might be made if a Dominion Bureau of Education were established at Ottawa. The Bureau of Education at Washington has done a great deal of work toward nationalizing education in the United States, and it seems to me that we might very well imitate the example of the people of the United States and establish at Ottawa a bureau similar to the Washington bureau. If this were done the process of weaving a national fibre into the several systems of education throughout the various provinces

would be well begun. To give an idea of what might be accomplished in that direction, I would like to quote to you what has been said of the work of the National Bureau at Washington. A recent writer says: "It (the Bureau) was not established until 1867, and save in one or two minor respects its functions are wholly advisory. It is absolutely dependent upon the good will of the educational officials of the states, counties and municipalities, and upon that of the administrative officers of privately-conducted institutions, for the admirable and authoritative statistics which it collects from year to year. That these statistics are so complete and accurate is evidence that the moral influence and authority of the Bureau of Education are very great, and that it commands a co-operation as cordial as it is universal." Another writer, referring to Dr. Harris, the head of the bureau, says: "His writ runs in no State, yet is read in all. His direct jurisdiction over American education is *nil*, yet, unofficially, he exercises over the minds and souls of the teachers all the spiritual suzerainty of an educational pontiff. No one can estimate, yet the most superficial observer can discern the enormous effect such a course of informal philosophy has had on the present generation of American teachers." If such a bureau were established at Ottawa we might expect similar results to that which the bureau at Washington has accomplished, and it might be that we would derive other material advantages. While it is true that the states are in supreme control of education, yet it is also true that a recent estimate has been made that shows that the national Government at Washington has contributed towards education in the aggregate a sum exceeding \$300,000,000 in land and in money. If such a process could be carried out, to quote Principal Peterson, of McGill, "Education may become the greatest federating force at work among the various provinces of our vast Dominion."

I would like to say something with regard to education in Ontario, speaking generally. The first department I would like to refer to is university work. I think it is not unfair to say that the lethargy, or, perhaps, I might call it the masterly inactivity in educational matters that prevailed, or seemed to have settled down, both upon the Legislature and upon the Department, in recent years, has suddenly disappeared, and

in its place we have such an activity that in the minds of some it might be described almost as an excess of courage in bringing in educational reforms. At a stroke the University of Toronto has been placed beyond the reach of financial distress. This action has received the cordial approval of the country at large. The University of Toronto, being a provincial institution, is entitled to be placed upon an adequate financial basis, so that it can fulfil the expectations that are entertained of it by the people of the Province, and the wishes of the people in that respect have been amply fulfilled. Then we have had recently the report of the University Commission. That document has also commanded the admiration and approval of the Province generally, and I think it is not over-stating it to say that that report will take high rank among the valuable state papers of this country. It may appear to be invidious on my part, and, perhaps, presumptuous to attempt to criticize any portion of that report, but there is one part of it that I feel bound to take exception to, and that is the suggestion that a fixed percentage of the succession duties should be applied towards the support of the University of Toronto. That is a proposition that I think on consideration will appear open to serious objections. It seems to me that the proposition involves an arbitrary principle of appropriation, and is one that would likely create irritation and hostility in certain quarters, and I think that the alternative proposition, which I understand was made, that a portion of the revenue derived from succession duties should be applied to Public School education generally, would be much less objectionable than if it should be applied to the support of a particular university, even though that university be the provincial one. I go so far as to say that I think in it there is involved a species of confiscation. That may be strong language, but I think it is justified, and I might illustrate that point by taking the example, say, of a man who had a special interest in some other university, or who, perhaps, was absolutely opposed to helping universities at all. Why should he, after he is dead, have his property devoted to a purpose to which he was utterly and irreconcilably opposed in his lifetime? It seems to me that if you think the matter over you will see so many objections that are applicable to the proposition that it would be one in your opinion that should be adopted by the Legislature only after very, very careful scrutiny. It

would be calculated to check the flow of private benefactions towards the support of university education, and we all know that some of the noblest universities on this continent are the result of private benefactions, and not the result of State support. Mr. Chamberlain, in discussing this matter recently, expressed this opinion: "And I think in all our opinions"—representing a deputation—"it will be more undesirable in any scheme for State aid, that any thing should be done that would discourage in any way local interest and subscriptions."

I wish to say also that I think there is a large field of university work that lies outside of the scope of the University Commission that ought to be taken into account in dealing with university education in this Province. The movement for federation has practically reached its limit. It was destined, I think, from the outset to be confined to the colleges located in the City of Toronto and those in its immediate neighborhood. In that respect it has been a good thing and has resulted beneficially. But it seems to me that our educational horizon has very greatly enlarged since that movement was set afoot, and a proposition that would have satisfied the people of the Province of Ontario at that time would be rejected very promptly at the present day as not being sufficiently ambitious. I venture to think that we are bound to have more universities in the Province of Ontario than we have to-day, and in connection with that I would like to draw your attention to the striking contrast between the ideas upon this subject that prevail in England at the present time and the idea involved in the original movement. Not long ago—I think in 1894—a deputation from the universities in England waited upon the British Government, and in it all the great universities, including the new institutions, were represented. A number of the large and important cities in England have recently established universities of their own, and they, to a large extent, maintain themselves by a rate in the ordinary taxation and by private benefactions. Mr. Chamberlain, speaking of the recent multiplication of universities which had taken place in England, said: "In the first place this has been brought about by the recognition of the fact that in matters of education supply creates the demand, and that education, even of the highest form, will be much more generally appreciated and accepted by the population if we bring that

education to their homes. We feel it our special duty to supply those needs in the direction of applied and pure science and scientific research, which are naturally called for by the conditions and circumstances of those among whom we live, and in the multiplication of universities which has taken place, because I can assure you it will not stop where it is at the present moment—it is the belief and hope of all of us that many similar universities will be established in the future—in this multiplication we are only following the example of other great civilized nations of the world, at a considerable distance, the United States, Germany and other countries." It seems to me that a similar view is impressing itself upon the people of Canada, and that a proposition that all university education should be centralized, or localized, in any one particular city, would not be acceptable to the people of the Province. It seems to me that our outlook is sufficiently encouraging to warrant the prediction that Ontario will not rest satisfied with having important university centres in the City of Toronto, Kingston, Ottawa and London, but that it will also demand a university in the not distant future in the North as well.

I think also that it is worthy of mention, that it is proper that I should mention a feature in university education in Ontario, during the last twenty-five years, one that you have all observed, and that is, the rapid rise and importance of Queen's University at Kingston. From a position of most critical weakness this institution has risen to a measure of influence and importance that is recognized upon all hands. Queen's University is a splendid monument to the life and the work of its late revered principal, and to the enthusiasm, loyalty and devotion of its alumni and friends as it stands to-day. Speaking of this institution, a distinguished member of the Moseley Educational Committee has this to say: "Of all the educational institutions I visited on the American continent, none left on me so strong an impression of doing high-class work on scanty resources." And it seems to me that any comprehensive scheme of aid towards university work would not be complete, if it would not be fair nor just, unless the work done at Queen's University were taken into consideration: not only at Queen's University, but at Ottawa or London, provided the work was of such high character as to command the general esteem of the Province at

large. Now, I do not wish to be misunderstood upon this. I do not for one single moment advocate the application of public money towards the sustenance of any denominational institution, but it seems to me that there is a field outside of that altogether by which work of the character to which I have referred can be recognized and assisted, and the charge of assisting denominationalism in any form at the same time be avoided. If that be possible, then I think it is a fair proposition that university centres, even though they have some connection with denominational institutions, may be included in a general scheme of aid without applying the money, or any part of it, toward the assistance of any particular denomination. A very interesting article upon this head appeared a few years ago, written by Mr. R. B. Haldane, now a member of the British Government, in which he advocated a plan similar to that which I have attempted to outline. There is a field outside of the ordinary university work that is open to the plan I advocate. It seems to me that so far as faculties of applied science are concerned, even if they are situated close by and receive a certain amount of assistance from an institution that may be denominational, it is quite feasible that Government money may be applied toward the maintenance of that faculty with proper safeguards, so as to leave no reasonable ground for the charge of applying public money to denominationalism in any sense of the word. I take the view that we may reasonably look forward to the time when the culture side of university work, the less expensive, may be almost entirely supported and maintained by the benefactions and by the assistance of its alumni and friends, in addition to the endowments they already possess, and that the Government grants, the Government assistance, may be almost entirely applied towards the maintenance of the more expensive part of university work, that of applied science and technology.

With regard to secondary education, I think that in this department of our educational work we have the greatest ground for satisfaction. During the last twenty-six years—take the period, say, since the appointment of the first Minister of Education—the progress and development of our secondary schools have been such as to warrant us in feeling very much gratified. The progress has been marvellous in respect to the number of schools, the number of teachers in charge and their academic and professional qualifications, in the scope of the work done in these schools,

and in the equipment and style of the buildings and degree of financial assistance that has been accorded to them by the municipalities and by the Government, and I think that the progress that has been made is such that we may all feel proud, indeed, of what has been done in this part of our educational work during the last twenty-five years. If one were to attempt to find the cause of this I should say that it is largely due to the excellent system of inspection which has been carried on during the period. I believe that the two able and zealous High School inspectors have fostered and encouraged High School work, and have been so closely in touch with the Minister and the Department that there has been an inspiration proceeding from the Department to these schools that has made them what they are to-day. It may be that the advance has not been so marked of late years, but when the Minister comes to present his measures upon High School education, as is promised, I have no doubt that these schools will be moved forward, so that they shall have an increase to the dignity and the importance of the work assigned to them, and that they will be placed in a position to take up and perform part of the work that is now done in the lower classes in the universities, and that thereby they will be raised to their proper status.

With regard to the Public Schools, I shall not discuss these to any great extent. We have the Honorable Dr. Pyne, Minister of Education, with us to-night, and as I know that your interest is largely centred upon the two bills that are now before the House, I think it would not be in good taste on my part to in any way discuss or speak of these measures, because I presume that Dr. Pyne will avail himself of this opportunity of explaining to you what is aimed at in the several provisions contained in these important measures, so that I shall refrain from discussing Public School matters now, and will reserve any ideas I may have upon it for some other occasion. I believe this, however, that it may be said that the Public School system of late years has drifted away from, and has become out of touch with the Department of Education. I believe that it has got into a condition of semi-isolation, and that what is needed is to bring the system into closer touch with the Department by means of a proper system of inspection, so that it, too, will receive inspiration direct and immediate from the Department, as has been the case with the High School system.

. There is one matter, however, that is included in these bills that I would like to draw your attention to, and that is in connection with the rural schools. This portion of the Public School system apparently has been suffering the most, and has, perhaps, more disadvantages than any other part of our whole educational system. Now, I believe that at the bottom of the whole trouble is the school section system,—the school section and the school section board, useful in their time, but absolutely out of date at this present time. And I believe that it is the duty of the Government to totally abolish the present school section system and substitute something better in its place. We will never get away from the narrowness and the pettiness that have characterized the administration of this portion of our schools until we get something better substituted for those petty, insignificant sections and boards. And what I advocate is the substitution of township boards for these section boards. I believe that in view of the provisions contained in these bills now before the House, whereby the townships have got to put up a good deal more money than they had to before, that it is only fair to the townships themselves, and is most decidedly in the interests of the schools that the administration of all the schools in the township should be placed under a township board. I am not suggesting that, simply because I wish to experiment. It has been tried elsewhere and has been found to work well. It is in force in Scotland, where they have a parish system, and a parish board in control of all the schools in the parish; the trustees hold office for three years, and there is a continuity of policy which is being carried on in connection with these schools which has made them what they are to-day in Scotland. Then, again, we find that a township system has been adopted in the State of Massachusetts. The old district system there was abolished years ago, and the township system was substituted for it with the very best of results. Let me read to you a portion of a letter that I received a few days ago on this head, from George H. Martin, the Secretary of the State Board of Education for Massachusetts: "As you will see from these notes the township system has been established completely, and the change was made so long ago that it has practically ceased to be a matter of discussion, and we never now raise the question as to the comparative value of the township and district systems. We could not go back if we would, and no one, so far as I know, would do so if he could.

The centralized system secures a uniformity of school privileges for all the children of the township as to length of schools, as to books and supplies—which are free in this State—as to professional supervision, which is universal, and as nearly as possible as to the quality of the teaching. Of course the larger graded schools in the villages have better teachers than the small out-lying schools, but the teachers, even in the small schools, are better. The township system makes it possible to close some of the smallest schools and convey the children to the central school.” It seems to me that under a township system the waste of energy and the waste of money that may occur if the proposition for fixing a minimum salary for teachers is carried into effect would be avoided; that there will be a greater facility for removing the small, weak schools and enlarging the sections, so that there would be fewer one-master schools, and as many as possible two-master schools—not the ordinary plan of a consolidated school for the whole township. That is impracticable, but I believe we can do a lot of good work in the enlargement of sections and the substitution of two-master or three-master schools for the present weak one-master schools.

I find I have probably trespassed altogether too much upon your time already, and I will content myself by simply pointing out one more matter. I trust the Minister will pardon me for doing this, but I think it is only fair to draw his attention to an omission that, I think, has been made in the composition of the Advisory Council. The Advisory Council, as proposed by the new bill, is entirely professional. There is no representation of the lay element in it at all, and what I think should be done is to recognize the large body of trustees in this Province in some way by granting that body some representation upon the Advisory Council. I believe that the trustees are sufficiently intelligent, and I know that they are sufficiently interested in the cause of education, to warrant their being represented upon this body, and I throw this out as a suggestion to the Minister, that in dealing with the matter finally, he will accord to the trustees, who represent the people, some representation, whether it be from their own body, or the privilege of electing some person, or more than one person, as members of this Council. I believe that in its deliberations that body would derive material assistance from hearing the views of educational matters coming directly from the people who are experiencing the working of the system in every-day life.

ADDRESS OF HON. R. A. PYNE, MINISTER OF EDUCATION.

*Mr. President, Ladies and Gentlemen,—*It is, perhaps, unnecessary for me to assure you how delighted I am to be permitted an opportunity of meeting with you on this occasion. It may not be inappropriate to confess, at the outset, to some little feelings of discomfiture and timidity when I find myself addressing an audience containing so many educational critics who have made this subject a life study. I desire to congratulate my good friend, Mr. Dow, if he will permit me, on the very excellent address he has given us to-night, replete with fresh ideas and plans for the betterment of education, and showing a careful study and wide knowledge of this most interesting question. While Mr. Dow was apologizing for his position here to-night—although he is the head of this great system—I could not help thinking how well his remarks were adapted to my own position in this gathering. I never was a teacher, and never had anything to do with the Public or High Schools of this Province, except as a trustee, on different occasions, of both of those bodies. I may say, Mr. President, in addressing you to-night, that I am fully cognizant of the feeling pervading not only the public in general, but the whole teaching profession throughout the Province, on the bills recently introduced by myself in the Legislature; and I am pleased to be here to-night because I feel I am, perhaps, on different ground from that on which I have been called to stand since my advent into the political arena. In coming to you to-night I realize that polities are banished from this hall, and that the question before us shall be discussed in a fair, unbiased, non-partisan spirit, and entirely on its own merits. We meet here, Mr. President, as a body composed of all classes, creeds and polities, on the common ground of brotherhood, filled with a strong desire to accomplish something which will be of benefit to our fellowmen. You, Sir, referred in your address to the higher education—the university branch—which, I may say to you, was the first thing dealt with by Mr. Whitney's Government. Peculiar conditions were found to exist, and in dealing with this perplexing question the Govern-

ment had those conditions to meet; and you will permit me to say that we trust the action taken was such as will commend itself to the people of this Province. As you have stated, Mr. President, there has been a sort of general indifference—lethargy, I think you called it—a feeling of public inertia all over this continent, as well as in other countries, regarding public education. There seemed to be a lack of interest in Public School training in particular, and a feeling pervading the whole people, that what is everybody's business is nobody's business, and thus the whole problem has drifted along. I can assure you that I am not here to cast reflections upon any one who has been identified with the educational system of this Province, neither have I any desire to do so; but still, Mr. President, like yourself and many others, I fully recognize the state of unrest that has existed all over this Province regarding Public School education—in fact, one could not help noticing and remarking it. The public press, educational journals, great associations and conventions, were united in their opinion that something was wrong in the educational system of this Province, but, seemingly, no one volunteered to make a definite statement or suggest a remedy. Now, Mr. President, I hope the time has arrived for a general public awakening, when the parents and guardians of the children of this Province will join in with the Inspectors, High School Principals, Teachers of the Public Schools, and with the Government, in trying to do something to rectify a condition which has existed for some time, and to elevate the educational standard of this Province to the high position which it is called to occupy. The late Principal Grant, when President of Queen's University, made the remark that he thought a state of disorganization had been found, and that under the blind belief that it was going to be improved by organization, more organization was added. I think President Loudon, the present President of this University, in whose building we are assembled to-night, one of our own educational institutions, said that the whole system of education in this Province was a disjointed and disconnected one. Why go on repeating these remarks that have been made, because they all tend to the one general conclusion that we must arrive at, namely, that there is something wrong with the system of education in this Province. It has been said, you know, in, perhaps, a very glib way, that the educational

system of this Province was one of the best in the world, that the child entered at the kindergarten class, passed on to the Public School, then on to the High School, and finally on to the University. I want to ask my friends here to-night how many of us were so fortunately situated that we could count on a course of that kind? How many of us started in life with the kindergarten and left at the Public School? That was the station we put off at. We had no through ticket that has been so delightfully and graphically described, as going from the kindergarten to the university. There was no ticket given to us, and we were put off at the Public School station to do the best we could in the struggle of the life before us. Therefore, it behooves us as a Government to give our attention to that part of our educational system, the Public School education of the children of this Province, for about 90 or 95 per cent.—I think my leader is on record as saying 95 per cent.—never go beyond the Public School in this Province. Therefore, it is incumbent upon us to equip the minds of the boys and girls leaving our Public Schools with the very best we can give them, turning them out in life with a mental equipment such as will be equal to whatever may be before them. The development of any system of education is not one of a day, nor a week, nor a year; it is one of many years, and it often takes years to work out a great system of education. The changed conditions that we know exist require changes in education. I need not point out to any one here, and especially not to the older members of this assemblage, like myself, who have witnessed the pioneer life in many parts of this Province, how the honest, hard-working pioneer went in with the implements necessary for such work and hewed out for himself a home in the wilderness, and to-day he and his children reap the reward of that work; but I want to make this comparison: would the implements that he used at that time, thirty or thirty-five years ago, be of any use to-day in the modern civilized community? Where he used to do his tilling, possibly with the ox and a wooden plough, to-day you may have a gang plough with three great horses, or possibly an automobile. That wouldn't be, however, on Donald Sutherland's farm, I can tell you that. It just shows you the changed conditions and the changes that must take place in education to meet these changed conditions. This reminds me of a very forcible analogy that can be made

from the great Niagara Falls—that great cataract—and it also recalls to me what Lord Dufferin, then Governor-General of Canada, said when he was at Niagara Falls, and saw it for the first time, and was banqueted there by the people. Apt as he was and eloquent, he looked out on this wonderful cataract, which he described as one of the seven wonders of the world, there in its natural state, and as the water tumbled over it and rushed on through the rugged rocks and rapids down to the blue and placid waters of Lake Ontario, what were his remarks? He said: "Ladies and gentlemen, when I look on this sight I think it is the most beautiful I have ever seen. I have travelled in most parts of the world, but I have never witnessed a scene like this, and I must here remark I never saw a part of the world where the Lord had done so much and man so little." What would he have said if he was alive to-day and could see Niagara, this great and wonderful cataract, harnessed up as it is by the sons of toil, guided by that scientific knowledge which has been taught in the great universities of this land? What would he say? He would say the whole educational system of this Province must have been changed to do such wonderful things. This is just a little analogy that shows me that twenty years ago or less the school system of this Province may have been adjusted to the conditions, but see what changes have taken place in less than twenty years, and it is the bounden duty of all those engaged in educational life to try and keep education, as it were, abreast of the times they are living in. That is the object we have in view. The educational system of the Province includes all these branches, the sum of which I look upon as the great Public School question, and the one that is now agitating the minds of the people of this Province and the members of the Legislature. The High Schools, it has been very aptly said, are doing very well. They, perhaps, have had more attention; they have, perhaps, had more money spent on them than the Public Schools; there is nothing there to give us any concern at any rate for the present, but the Public School is the one demanding our attention. I have endeavored to show you that feeling of unrest that you all have recognized, that has existed in this Province as I say it has in many parts of the Union, and it has brought to the minds of the Government this problem, how are we going to improve this condition? What

is best to be done? Let us have courage, as my friend here says we must have had to introduce the bills last week that we did in the Legislature. Now, the celebrated Mr. Maxwell, who is one of the Supervisors, I think he is called in New York, has placed some remarks on the form of education he thinks necessary, and it might not be out of place just briefly to read you a few extracts respecting the composition of the curriculum. In the opinion of not a few people the Public School courses are thought to be overloaded with subjects, that the amount of time spent on what are considered essentials is insufficient to secure the desired results. Those who give the above reason believe that all our Public Schools should attempt to do is to train boys and girls to write neatly and legibly, to calculate rapidly and accurately, and to read with expression and intelligence. That would count out all frills and fads, as they call them, and practically limit the course to that old standard phrase, the three R's. Many others, while in the main agreeing with those who would materially reduce the number of studies, are, nevertheless anxious to secure a wider outlook, and would include other branches than those mentioned, and there the problem still seems further from solution. Many of the educationists of first rank hold that the study of the child's mind and nature reveals so many interests and aptitudes that a very limited curriculum results in dwarfing the child's intellectual and emotional development, and any course of study for the lower grades should have more, rather than fewer, centres of interest. Almost following these remarks a popular vote was taken in the City of New York regarding the frills and fads, and very strange to say the frills and fads were retained in the curriculum by a very large majority. Very shortly after that, I believe, it was reversed, and the frills and fads were kicked out. I am mentioning these facts to show you the unsettled state of the mind on what is best to do in the Public Schools. I could quote to you remarks from Mr. Blodgett, the Superintendent of Schools for Syracuse, much on the same line, and from several others, and also from that celebrated Frenchman, who, when he was addressing the Deputies and made a request for more funds, said that he always found that soldiers, patriotic and loyal though they may be, needed money and needed food. Now, I am coming down to what I believe, and what the Government believe is

necessary to do to lift the Public School system as it were out of—well, I will say the rut it has got into—and I do not want any one to think I am reflecting in any way on any one, for I have no such idea, but to lift it off the plane it is on, and put it on a higher one, and the first that strikes us there is the teacher. What are we going to do for the teacher? I believe that the crux of the whole trouble to-day, particularly in the rural schools of this Province, is the condition of the teacher and the way he is paid. The teacher, as you all know, can make or unmake any system of schools. Let me say here regarding the individuality and the personality of the teacher, that if you show me a good school in the Province of Ontario, and if it is a good school, such as you describe, and a noted school in your county, I will at once tell you you have got a great principal there, a man of great individuality and personality; that makes it a great school. Look at the great schools in England, such as Blundell, and Rugby, and Harrow, and Eton, and the success of every one of them can be attributed to the one-man force and power that presided over those schools, and it is said the greatness of England has been largely due to the great teachers, such as I mention, who brought those schools into such great public notice as they have been. I remember my father telling me of a celebrated school in Ireland. The boys from that school were known all over England, Ireland, and Scotland. It was Price's school, in the South of Ireland, and it was Price that gave it a character, and not only that, but to the boys from that school it was a passport almost through life for any position they applied for, if they said they had been educated in Price's school. It got to be almost a universal word: "If he is from Price's school he has a good education; he has been well trained," and when he took off his hat to his seniors he was noted at once as being one of Price's boys. So that I say the teacher, to my mind, is the great necessity. If we have a good teacher we have a good school. On that line we have introduced these bills, courageous it may be said, but I think when the time comes, if these bills become law—they have just been proposed, and although I had the honor of presenting them to the House I said to the House, as I say to you, these bills are there for your consideration, improve them in any way you can; amend them in

any way you can, and I myself, sir, as the promoter, will be delighted if you improve their condition. I am afraid, Mr. President, as time goes on, that I will, no doubt, get the name, at all events, of being a very extravagant Minister of Education. I do not believe you can do anything well unless you are prepared to put up the money. I believe schools have been starving in this Province, and I have no hesitation in saying that I hope the time may come when the finances of this Province will permit of doubling the grants given to educational matters of this Province. I would like, if finanees would permit, to let it be known to every teacher, every male teacher, say, who makes a permanency of the profession, who stays in the profession doing the best he can, that after he has been there for twenty years he would be provided with a bonus of \$50 to \$100 a year for the rest of his life. And I would like, if finances would permit, to say to every lady teacher, if you put in fifteen or twenty years in this very arduous life of teaching, when that is acomplished you shall derive a bonus of from \$50 to \$75 for the rest of your life. Perhaps that might be overcome if we had a system, a proper system, of pensioning, a proper system of superannuation; and I may say to you, and some others of our good friends in the teaching profession, my friend, Mr. Seott, and others, we have been considering a pension scheme, a superannuation scheme, but it is a stupendous one, a very difficult one, and we do not want to find ourselves, as a Government, in the position that one of the British Governments found themselves in when they undertook to establish a pension scheme, that the actuary did not give them proper information to be able to carry out what they promised, and a very serious loss was incurred to the British Government of that day, amounting to millions and millions of pounds, and the scheme could not be carried out and never was carried out. I am throwing out these suggestions to my friends that they must be careful in what they bring before us, that it has been well weighed, so that we won't be making promises to the teachers of this Province that we could not possibly afterwards carry out. While I am speaking of what I would like to do if I had sufficient cloth to cut the garment I would desire, I might mention something that has been on my mind for some little time, and that is the establishment in connection with the museum at the Education Department of an

educational museum, a museum devoted altogether to school plans, to equipment, to sanitary arrangements, to maps and school supplies, desks and heating; that the trustees of a rural section could come to, and at a moment see just exactly what they wanted, and what would suit their purse and the section they represented. That, of course, needs money. That is one of the things that has been running through my mind, because I have had communications from different parts of this Province asking where they could get hints on the best form of desk, or the best equipment in one way or the other for their schools. It is so prominently brought before me that I have realized that some amount ought to be spent in an educational museum. I believe it would be in the interests of the people of this Province from one end to the other. Talking of ideals, and what I would like to do, I would like to offer a thousand dollars, say in the best books, for competition amongst the different inspectorates of this Province, given to the inspectorate that would show us the best conditions of school-houses, their dependencies and grounds—that would be one; then the conditions of the furniture and the school equipment; also the carrying out in the best way the rules and regulations of the department, and I believe that would be a good thing to do to offer a competition of that kind, and if my friend, Colonel Matheson, could only see his way to say: "Now the exchequer is full; go on, Pyne, and do what you like," I would give you some fine things in this Province. Just a word regarding the inspectors, and the very important duties that they have to carry out, often, I think, not realized. The inspector's work is most important. He must be a man of many parts; must get up right near the teacher to know him thoroughly, to advise him, not to criticize him; to build up with his advice and not to tear down; because we all know the feeling of the teacher to the inspector, and he watches him closely, and if the inspector is a capable man he can do a great deal of good for the education of the young of this Province. The inspector, as I say, has great power, and with a judicious and discreet use of his knowledge he is one of the greatest officials we have connected with education in this Province. I would like to see the inspectors in some instances—and that may be a matter we will have to take up—more equalized than they are. Some of the inspectors of the Province have an enormous number of teachers, getting up nearly to two hundred, and in the teaching

days in the Province it is almost an impossibility to do his duty to each of those school-rooms. The Act now says that 120 schools shall be the limit, but as you all know many of them go away beyond that. I do not think we have inspection enough. Many of the schools in every inspectorate, the weak schools—and I have been told this by inspectors themselves—should be inspected more attentively, and, perhaps, more than once, say two or three times in a year, but in a large accumulation, such as I have described, that is utterly impossible. I hope, as time goes on, and if we meet with the success we hope to meet with in the educational bills now before Parliament, that may be taken up at some future time, and, perhaps, not very far off. Now, the rural school at present we all know is the difficulty, not only in this Province, but, as I said, in almost every State of the Union. Legislatures, schools boards and people are all struggling with the rural school problem. In the States of Illinois, Massachusetts, Ohio, Pennsylvania, Nebraska and several other States, they have, they think, arrived at a solution for the difficulty of the rural schools, and that solution is the consolidated school that our good friend here mentioned. Now, the consolidated school has impressed me very much, but I cannot say that I am convinced yet of its general utility for the whole Province. There may be districts, there may be localities where there would be an accumulation, say, of half a dozen sections of sparse school population, where it would be in the interest of them to join together and establish a consolidated school. They would then have the advantage of better teachers; be able, as it were, to economize; pay better salaries, have better teachers in a sparsely settled part. There are parts of this Province that I think would indicate that the consolidated school would be a success. Now, we have one in this Province. It has been up for discussion already in the House. That is at Guelph, the MacDonald School, and whether that was established in a locality that offered the facilities for a consolidated school I am not prepared to say, but I know this, that it has cost a great deal more than when the sections were by themselves. There is the difficulty. The consolidated school, to my mind, does not give the relief that we might hope for in the rural schools of this Province. However, I have not abandoned the idea of more thoroughly acquainting myself with the consolidated school question,

with a view of doing the best that can be done with the consolidated school system. My late Deputy, Mr. Miller, whose remarks I have heard on this question, said that there is a much more pressing question than that of consolidation. If we are going to have better schools we must have better teachers. To get these we must have better salaries, and this requires a readjustment of methods of taxation and grants to schools. Now, as you evidently expect, from the remarks of our President, that I am going to tell you something of the bills now before the House, I must not go on too long in this rambling way over education. I want to say something, and make a few remarks on a branch of education that strikes me as very important in this Province of ours, and I refer to the Technical School. The Technical School has not attracted that attention from the people of this Province, and I may say from Canada, in general, that it has attracted in many other countries. Our people have been slow to take up with the idea of technical education, yet we find some of the greatest nations, particularly in the Old World, who have gone largely into technical education, and the great system of technical education that has been established in Germany is almost the wonder of the world to-day. The versatility of pursuits of the German, the educationists of that country, have tried to keep abreast with, and to provide Technical Schools through Germany on the line of the varied pursuits found in the different German localities, educating the people, as it were, in the pursuit of that part of Germany with which they knew competition could not come in, the natural environment producing industries of all kinds; and to-day Germany, I suppose, is the envy of every other European nation for the wonderful progress it has made in the industrial and commercial pursuits, standing, as it does, almost at the head of the nations in the Old World, supreme to-day in all industrial enterprises. Lord Rosebery and the celebrated Joe Chamberlain, and several others, have said openly that England seemed to have lagged behind in the matter of technical training and technical education, and their great object to-day is to try and educate the English people, so that they can do the best for themselves with their natural surroundings. Technical education in the United States, particularly in Massachusetts, where they have that great school of technology in Boston, and a place that they spent mil-

lions on, has done wonders for the United States, and I may say here, as my good friend reminded me of it, that I think technical education is something that goes beyond the sphere and the province of provincial politics. I think the Dominion of Canada and the Dominion Parliament should make an annual grant to every Technical School that is established in this Dominion. I think it is their duty for this reason: I believe if they made an annual grant to Technical Schools they would produce Canadians able to take hold of the natural resources of this Dominion, and that in that way it would be money better spent, Mr. President, ladies and gentlemen, than building transcontinental railways, or dealing in preferential trade tariffs; it would educate the Canadians in the lines of industry that are suited to them. We all know of our great resources. How are they going to be developed unless it is through the educational system of this Dominion of ours? There are many things, perhaps, that come to a medical man's mind when he finds himself the head of a great department like education. There are many things that have struck me in days gone by that I thought could be improved upon, and I might say, in the care of the children, the great responsibility rests upon the teacher, and I propose in the new regulations that may be issued that every teacher shall make him or herself competent to test the eyes and the hearing of every child in the room. I do not mean to say a scientific test, that would require to be made by a medical man, and that possibly a specialist; but I do say that they can make sufficient test of the sight and hearing of the children under them, that if there is anything very defective they will be able to say to the parents of that child, go to your physician and see what is the matter. It is a horrible thing to think of a child, with organism, not able to observe anything on the blackboard; bright in intellect, but not able to do itself justice; that that child is possibly marked out in the school as the dunce of the school when it is an infirmity that the child has no control over. These are things that come to a medical man's mind. There are many other things agitating England and the United States, such as the preservation of the teeth and sanitary arrangements, and all of those things that are of minor detail. There is one more thing I may refer to before I make a few remarks on the bills before the House,

and that is the great text-book question; that burning question, that question that has been heralded all over this Province, and I, perhaps, feel a good deal of that responsibility myself, that the people of this Province should get, and are entitled to get, cheaper text-books than they have been getting. When men assume office they find the difficulties that present themselves. Difficulties are made to be overcome, and if we make an honest attempt to overcome them, I think it will commend itself to the people of this Province. But on the matter of text-books let me say this, and I am telling you this to-night, which is possibly a sort of open secret, but it has been an idea of mine the short time I have been in office, that something might be done on the text-book question on this line, and it was, perhaps, from patriotic sentiments, from loyal sentiments, that I began thinking how can we give the public cheaper text-books, and I thought this: We are a Province in this Dominion, one of the Provinces in this Dominion. Why not try and establish over the whole Dominion a national series of text-books. You would at once cheapen the books to the people; you would increase the field to the publisher; you would be publishing millions instead of thousands, and if we could all agree on text-books for this whole Dominion it would help largely to solve the problem. Then, so far as text-books are concerned, it would be necessary for the Governments of the different Provinces to unite and acquire the copy-rights of the very best books that are to be had. Once the copy-rights were acquired then they could be thrown in the open market of this Dominion with the increased field for production; I think the result would be in the interests of the people. There is another matter to look at regarding the nationalizing of text-books, and that is from the patriotic side. Here we are talking about a United Empire; can you do anything better when you are teaching the young child, whose mind is then receptive to everything that is going on, than to put the very best form of text-book before him, and in that way help to unify this Canada of ours? Let us not talk so much about the unification of the Empire till we can unify first this great Dominion. That is a matter I have thought of myself, as one way of reducing the text-book, and doing something in that line that we are all so desirous of doing. Now, Mr. President, with your permission I will just

make a few references to the bills before the House. No doubt you have all seen them; I daresay you are all just as able to discuss them as I am from what you have seen of them, and I will be as brief as possible. Dealing with the Act respecting the Department of Education in the first place, that Act provides for the appointment of a new officer, who will be called a Superintendent of Education; a gentleman that should be permeated, and—if you will permit a medical expression—should be super-saturated with all the history of education in this Province for many years, who should know the Public School system and the High School system, and every part of it from the beginning to the end; who should have charge of the Provincial High Schools, the Public and Separate Schools, and the professional training schools, and the examinations for teachers; the art schools and libraries, and should make recommendations from time to time as they may suggest themselves to his own mind; a man who should supervise them in every way, and make suggestions for their improvement. That is one portion of the bill. Then there is the Advisory Council that our good friend alluded to. You know the composition of that Council as suggested, four to be chosen from the University; three of them elective; the desire being to have an Advisory Council of an elective character, so that the teachers and the inspectors, and all those interested in education, would be in touch with that Advisory Council. Then the Universities of Queen's, McMaster, and Ottawa would have a representative; two members to be chosen by the High School teachers of the Province; four to be chosen by the Public School teachers of the Province; one to be chosen by the Separate School teachers of the Province, and two by the Public School inspectors. The school representatives are to be elected by the different bodies entitled to vote, by ballot, being in direct touch with the teaching professions of this Province. Their duties, of course, would be of an advisory character, advising on matters that might be referred to them, which advice might be looked upon as expert advice to be used by the Minister, or rejected as thought best. And, then, there are the executive powers dealing with the examinations: the University examinations, the departmental examinations, and the results. Then there is the matter of the distribution of the High School and Public School grants, which is also a prominent feature of this bill. It has been found that

the system of distribution of the High School grants in the Province has done a great deal for the High School; stimulated the local authorities to do more for education than they ever had been doing. Now, the idea is to distribute the Public School grants on that same system, with a view to stimulating them, as we have experienced in High School matters of this Province. Then another important feature is the Commission of Inquiry that we ask for. I may tell you that there are many difficulties in the text-book question under contracts existing, and it was felt that it might be necessary to have a commission to go into the text-book question and go to the bottom of it. We are asking for power in this bill to appoint commissions of inquiry. Now, a word regarding the Public Schools. The Public School Amendment Act has some important features and they are important ones. First, I might mention the continuation classes and the desirability of strengthening those classes and permitting people of a section who desire to join together to establish a continuation class, and in that way bring almost to their door the advantages of a junior High School system, if they wish to avail themselves of it. We propose in that way to strengthen education along the line of continuation classes under the new bill. Then there is a short reference I may make to a portion of the bill in which we ask for increased powers of expropriation. Here and there cases have arisen where a Public School found it necessary to acquire adjoining property and enlarge their premises, and sometimes they are unable to do so. One instance is before us now of a property to which you cannot get any title, and there is no one living able to give a title to it. It is desirable that it should be obtained, and this expropriation clause will give the Board of Education the right to acquire it. Another important feature of this bill is the additional grants which will really be for salaries of the rural school teachers, and this is one of the parts of the bill that may cause a great deal of criticism; that may cause a great deal of feeling amongst the people, and we trust, as a Government, that the time has come when the people of this Province will see the necessity of doing more for the rural schools by paying better salaries than they have been paying, and that is what gives us courage. We believe we are at that time. I may deal first with the county grant that is to be asked. We are going to ask for a municipal county grant to the rural schools of a sum

equivalent to that that will be granted by the Legislature. I am not in a position to say to-night what that will amount to, but I think you can well judge, if it were left to me I will probably impoverish the treasury of this Province. At any rate I trust this sum will be large enough, supplemented by the grant from the county to make it of great importance to the rural school, and it will be divided equally amongst them, and applied to the payment of the teacher's salary. Another important matter is the municipal council tax, which has been heretofore \$150 a year. We are proposing to ask them to make it \$250, and I may tell you I have had all sorts of letters since that came out, many approving, many saying we are asking them to pay too much; but I am glad to say a large preponderating majority say that is not a bit too much. We are asking that that be made \$250, to be applied to the payment of the rural school teacher, to be supplemented by a tax on the section of a similar amount of \$250; if the assessment of that section is \$160,000 and over, so that that is not a very serious sum; and then we are asking the township council to provide \$150 towards the payment of every assistant teacher of the municipality; to be supplemented by a section tax of \$150, so that the minimum salary of the assistant teacher, in a section assessed at \$160,000 would be \$300. I will tell you at this point that it is necessary to do something; the salaries of the teachers in this Province have been deteriorating and going down, and what did we see the other day in this great city of ours? A car of people, booked for the North-West, containing twenty-seven teachers in that one car—twenty-seven teachers leaving this Province. Many of you that read the press of the day have read the statements made, particularly by one lady, who said she had been teaching for a number of years, and her salary had reached \$400. She said, What is the prospect for a teacher in this Province? I don't think there is any; I am offered \$700 in the North-West. If it is going to take the lady teachers away won't it likely take away the few male teachers that are left. Because the prospects that are open in a new country like the great west are very alluring, and most likely to take all the good teachers we have away from this Province. Now, Mr. President, would it be possible that the people of this Province, that any Board of Education in this Province, that any Board of Trustees in this Province, would like to see the standard of the teacher

reduced? That is what is coming unless some such system of the minimum salary is fixed in this Province. I may tell you British Columbia has established a minimum salary, and the minimum salary is \$600. What would our people say to that? They would say that the new Minister of Education is a revolutionist. But I think this will work out all right. I just want to mention that in the additional tax put on the section, the rich section, the section of \$160,000 of assessment or over in the municipal township tax, will be helping the poorer sections. There are many counties in this Province where frontier townships are very valuable and very wealthy and well built up, and it will not hurt them a bit to contribute a little to the poorer sections, because any half dozen children attending any school in this Province, even though they be in a remote part of the Province, are just as much entitled to the best teaching as the child in the great urban centres. The section tax, I might here remark, will be augmented, and will not reach the sums I have mentioned, because the county tax, which is to be equivalent to the special grant from the Legislature, will be given to the section and will reduce the section levy just to that extent; and I want to tell you, from looking over statistics furnished by the inspectors of this Province, that in some cases I find a school section that pays the fair salary of \$300; but how is it accomplished? By a levy of almost three per cent. on its assessed value. This would help a section of that kind very much, and, I believe, if it is carried out, that time will tell it is a good measure. However, the bill is before you, and it is before the Legislature of this Province. The present Government are all in a receptive mood. I trust that this week you will all look over those bills and inwardly digest them. Give us your ideas in any way you can and we will be delighted to have them, knowing they come from people capable of judging what the conditions will be. I just want to say that the present Government feel, and I think, it was one of the planks in the platform of Mr. Whitney's Government, that was going to be very prominent in whatever he undertook to carry out for this Province, that the first part of his policy would be education; the second part education, and the third education. I sincerely thank you for this very kindly hearing you have given me; and you, Mr. President, for extending to me the very kind invitation you did to meet with the Ontario Educational Association.

NATURAL HISTORY AND NATURE STUDY.

DR. JAMES FLETCHER, DOMINION ENTOMOLOGIST, OTTAWA.

In a rather extended experience in agricultural meetings I have learned that at 5 o'clock most people like to go home to do the chores, and I have also learned that at all city meetings at 10 o'clock most people like to go home to go to bed. I therefore shall not keep you very long, but on account of the importance of the subject that I have been honored by being asked to speak to you upon, I wish to make use of a few minutes in bringing before you the subject which has been announced on your programme, "Natural History and Nature Study." It seems to me that in the consideration of this subject by teachers there is still some lack of definition, or a definite idea of what these two subjects mean, and I would submit to you that it is important that you should recognize that these are two subjects which are separate for their use by you in training the children put in your charge. Natural History is far more extensive than Nature Study. Natural History deals with the systematic arrangement, the anatomy, and a full study of those subjects which come out of the different branches that we are taking up. Nature Study, on the other hand, the common sense of education, deals with the commonest things about us in a superficial or a surface manner. It deals with the salient characteristics and it is perhaps one of those branches of education that best gives us a chance to look into the actual meaning and the accurate use of words. The salient characteristics are those, as that word says, that are so conspicuous and apparent that they jump up and hit us in the face. The conspicuous characteristics are those that must be dealt with in nature study, and only those. Nature study is not natural history, although it may become the stepping stone from which natural history is studied. It deals with those elementary exercises which are taken up by students and which have been of so much use to the teachers of this and every province. Nature study gives teachers an opportunity, I think, of coming into contact more closely and becoming sympathetic with those put in their charge, better than any other subject. The objects dealt with are natural

history objects and the commoner they are the better they are for the purpose. Natural history objects are perfect as nature made them, and because of that pefection they are beautiful to those who can see them. They are therefore particularly well suited to those who want to incnlcate in the minds of those they are teaching ideas of habit, method, system and appreciation of all the other virtues we appreciate in men and those children who are to become the men and women of the country. It will give us an opportunity of exciting the interest, and interest is the foundation of all advance in pupils and students. We find there is no difficulty in keeping up that interest because it is fed by making unexpected discoveries at every point, and the more the pupils are discovering the more they are carried on by the excitement of finding the fulfillment of their wishes and hopes, and the development of self-reliance which comes from the conviction that they can overcome difficulties by the discoveries they are making all the time. They get into studious habits, and from those studious habits they have got into the spirit of nature study and wanting to know not only that information which is brought before them in those commonplace objects, but in all those other studies that are in the curriculum and with which they are being trained to be useful men and useful citizens of this country. Nature study has been accepted by the teachers of the country with—I may say—avidity. They have found it is so useful to them; and nature study directed by the skilful teacher is going in time to do away altogether with that frequently miscalled object the bad boy. For my own part I don't recognize that there is such a thing as a bad boy, but what a teacher finds to be a bad boy is a boy—I suppose girls are never bad—a boy who has so much interest and spirit in other things besides those he is not interested in naturally, he has so much interest he cannot be kept still, and that active spirit is the very spirit of enterprise wanted for progress, and if we can get that spirit and feed it with something to develop it we can improve that whole boy, his mind and his very soul, and natural history is going to be one of the great factors in soul development at this stage of the world, when it is wanted. Man began as a savage, when he was at enmity with everything, when he had to kill everything he didn't understand for fear it would kill him. Then we get to the pastoral age and men congregated together to protect their flocks and protect themselves. Then we

come to the agricultural age, when men had permanent habitation, when they could trust to the general protection from the increase of population to fight against or to protect themselves against any untoward incidents that might arise; and after that we find they gradually began to manufacture for themselves things and necessaries of life. They made those things that were necessary to live comfortably; men did some things, women did others; men made such things as were necessary in carrying on their work as agriculturalists, women looked after the home and made certain things which were necessary there. At the present age we come to industrialism when we find people are coming in from the country; and there is no meeting of farmers, no large concourse of people, but we deplore the rush of men and women and boys and girls to the towns. It is no use kicking against the pricks; it is a necessity. The age of domestic production is being superseded by the age of factory production and in the occupation and conveniences of towns we have attractions which will and always have drawn young men and women for amusement, for concourse, for opportunities of getting something to do in life; they are leaving the country and they are coming into the towns, but is it a benefit to them? No, it is not, and we find in the sordid influences of living in the towns with no outlook but bricks and mortar there is a chance of that soul development being crushed, and nature study is coming to help us out of that. Nature study is going to carry us back to nature where we can consider those things which experience has taught us are perfect and worth considering. To know the definition of what nature study is, and what it is for in your work, is one of the duties of every teacher. You must consider what it is to you before you take it up. We have, none of us, any right to engage one minute of our time in doing a thing which is of no use to us, and you have to consider, can you make nature study of use to you in your work of training those put in your charge? I believe you can. Sometimes we cannot appreciate what use a thing may be to us until it is forced upon us. We should force ourselves to consider anything we have to make use of, and you will find in your nature studies an abundance of common objects all around us which are worth studying. They are worth studying for us or for you because they will give you an opportunity to take hold of those who are put in your charge. They are worth your considering because

they will bring before you certain useful facts which you will only find out by those studies, and as I have spoken of children making unexpected discoveries, so you teachers will make unexpected discoveries in the beauties of nature. Nature Study is now on the curriculum of studies, so you have to take it up, that you may study it with your pupils. It has been stated by wise people all over the world since it has been adopted that it is a useful study and a useful subject of education. It is therefore worth your while to consider it, whether you are attracted to it or not. Natural history is a very much more extensive study; it deals with the systematic arrangement according to structure, physiology, habits and many other things which are not seen on the surface. It is a far more complete system of study, but natural history I submit is not for everybody. Natural history is most useful; it is that scientific investigation, as thorough as we can make it, to add to the known facts about every natural object. I will give you one or two illustrations to show you the advantage of knowing these things. There is, perhaps, no more wonderful discovery of the last century than the recent discoveries that have been made with regard to the transmission of disease, as of malaria and yellow fever, by mosquitoes. Within five years some of our leading men would have said they didn't quite know whether this was true. Now it is proved that there is absolutely no other means by which yellow fever and malaria can be transmitted from one person to another except by a mosquito, and a mosquito of a special kind. That has been proved indisputably. Again we have discovered typhoid fever and others are carried more by house flies and other insects than by any other means. These point to an enormous advance in our knowledge of those diseases, showing how they may be prevented in a large measure by simple means. When we consider the hundreds of thousands of dollars expended in disinfectants on wrong lines, when a very few dollars expended in a little mosquito netting would have prevented whole communities being wiped out, it shows there is a utility in this knowledge of natural history. But that is not what we are talking about. Nature study is equally valuable to you in that restricted knowledge of common things in a superficial way from their conspicuous characteristics, in your work as trainers of useful citizens. One of the important phases of this subject is this, that this is an opportune time to begin to

consider these things; it is an opportune time in the opening spring, just now when spring is rushing forward. Spring began long ago to those whose eyes were open. Away in the middle of February the first birds come back. After that time the twigs on the trees began to show color. Already here in your woods there are one or two flowers with their flowers expanded; perhaps you may not have noticed them. If you have had your eyes open you have seen your maple trees are in bloom. Probably most of you have, because in our normal schools we have good men teaching well and drawing attention to these things. We have at Ottawa Dr. Sinclair, you have at Toronto Mr. Scott, and in London Mr. Dearness, men who are wide awake and active, drawing the attention of men and women to these things. Nature study opens our eyes to see, and at the same time teaches us to think—to think and draw proper conclusions, accurate conclusions, and that is all nature study does. Nature study is an attitude of mind. The spirit of nature study is to be wide awake and see things, and see that everything in nature is perfect, is beautiful, and because of that is worth study, that those things in nature in the condition that nature made them are worthy of consideration because of those facts. The experience of others has taught us that they are useful in education; I will not go through all the different arguments, but you know well enough we have in Canada to-day some of the very best guides to nature study. I will not go so far as to say that because nature study deals with things and must be taught from things, from objects that are living or in existence as natural history objects, that therefore we must ignore books. We cannot do that, but I will say this, in the large literature of this subject some of the best books we have in North America are written by our own Canadians. First of all I will mention Agriculture, by Professor James; if every farmer in this country would read that book, I believe we could double the whole revenue of this Province, because it is accurate, it is well balanced, and brings forward the things that every man ought to know, and it is so concise and short, and well expressed that everybody can understand it. Then we have Mrs. Crawford's and Mr. Scott's "Studies in Nature Study"; Sileox's and Stevenson's "Modern Nature Study," and the new book of Mr. Dearness, on "The Way to Teach Nature Study." These are good and useful and as good as the best. They are worth reading, and we ought to study them.

They will help us to see how best to do things, and give suggestions worthy of consideration; but everybody must come right back to that one subject, self-reliance. No teacher can be guided entirely by any other systems, but they must not be disregarded. Teachers must speak from their own knowledge and for their own locality. The training comes with the occasion. Take up one or two things and learn all you can from them and you will do far better work than you would by attempting to cover the whole scheme of nature, which is impossible and will discourage. I am going to show you now a few slides and draw your attention to what I consider the nature study aspect of these things. Nature study is not restricted to living things; it shows the interdependence of the three great kingdoms. It shows the animal kingdom dependent on the vegetable kingdom, the one not able to exist without the other, and then it shows how these are all dependent on the mineral kingdom. Then we will look at the habitats, those places where any animal or plant exists to the best advantage under the conditions that have prevailed before and at the time. A change in these habitats brings us into connection with the mineral kingdom, and we have to consider the predominant forces and the present conditions which have produced these habitats, or places where things have existed. That consideration of how things live and where they live and why they live is what makes up nature study. I am very much opposed to using unfamiliar and unnecessary words, and I claim in this age of affectation where we are not satisfied with simple words and will always use a long or unfamiliar word by preference, I say we want to get back to the simplest words we can get, and the simplicity of nature study will help us in that. But there is one word I would bring before your attention, because it is so convenient and covers such a large field, and that is the recently made word, ecology, which again is a Greek word derived from "oikos," a home. This word ecology simply means the home of the thing we are considering. It is a very convenient word, and although it is unfamiliar, I think you will find it very convenient. The ecology simply means the place, the surroundings, the environment of any object we are considering; how it affects them and how it is affected by them. The conditions which produce the habitat are the data which point us to the ecology of any subject we are considering. Nature study brings us into contact with things that are living and things

that are not living. We must consider the whole scheme of nature in some way, in an elementary and surface manner, and the ecology of any plant or animal is influenced by the conditions surrounding the place where it grows in the largest numbers and to the greatest state of perfection. In these slides I will show you some of these plant societies, these places which give the conditions necessary to plants to prosper and to flourish. This will show you that every place we live in is a suitable place to study nature and carry on nature studies. Nature studies, then, deal with common things and simple things in a simple manner suitable to all and to be taught by any teacher or to be studied by any teacher with his students. I would submit to you another simple fact, that you cannot teach nature study. Nature study is not to be taught to a person; but to be studied with them, and if you want to develop a state and condition of sympathy between your students and yourself, you will find this studying together will give it to you; and if you have got pluck enough when your students come to you with some object and want an explanation, if you have pluck enough to say—I don't know, you have put yourself into a strong and impregnable position from which you will gain confidence and come down to their level and bring them up when you rise. Nature study is a study of some part of nature and not a consideration of all the details. In the pictures I am going to show you where certain things may exist, whatever the nature of the locality may be, there are some things which are found there in perfection. Every place in nature is suitable for studying nature. Every locality, whether in town or in the country will give us an enormous number of suitable objects to illustrate any point that we want to bring before our classes. A common method of studying nature to-day is in what is known as summer schools, and the summer schools have been exceedingly useful not only in bringing people together in an informal manner, but by giving them in an attractive manner an opportunity of obtaining useful and accurate information from those better informed than themselves. Last year at Ottawa we had a summer school, organized by Dr. J. F. White, which was exceedingly useful to those who were able to attend it. (Shows slide, Ottawa Summer School.) There ladies and gentlemen are studying geology; which is a branch of nature study. We find there were gathered together in that summer school a lot of

people who were happy. That is another feature I want to draw your attention to, because I consider happiness and the attaining of happiness, and the striving for happiness is one of the chief duties for all of us, not only for our own sakes but for the reflex action upon all others with whom we come in contact, for it is impossible for anyone to be happy without making people happy all around them. Every place in nature, in a state of nature, is beautiful. Every place you look at is as beautiful as that (referring to slide), if you look for the objects of beauty. But there is more than that. Every plant, every animal, every bird, and everything in nature has certain places where it lives in community with other things that have the same requirements. In the water we find plants that grow only in the water. Nearer the shores we find those with leaves growing out of the water, gradually getting towards the terrestrial method of life. On the shores we find the sedges, willows and other plants which live in mud. As we leave the streams and get further back we get among the hard-woods. On the high land we come to the conifers which take the place of the hardwoods and those with deciduous leaves. In these methods of study and in recognition of the requirements of all these individuals, we find that there are demands which are made as conditions of life, and if they are not met the plant or animal disappears. In getting into further details you will find on this slide on that rock (indicating), a company of the walking fern, so called because it has the method of spreading by the tips of the leaves forming little bulblets and roots. By removing some of the conditions such as moisture and shade, they will gradually disappear, but others will take their place. That wonderful change we find in the forests. In the beginning willows and poplars and the short-leaved cherry tree; then we find the seedlings of conifers appear. These keep on growing and it is probably from the fact that they have green leaves all the year and have a longer growing period than the others, that they replace them. This fact of some trees taking the place of others is worthy of our consideration. On the edges of streams we find plants that grow because they have proper conditions. We all know white elm swamps, and we have there a typical instance (slide) where the ground is charged with water. Along the edges we find other plants and in other parts of the landscape which we may consider we find there are always certain trees and certain plants and cer-

tain animals and insects and birds which take the place of others which need different conditions. As we find in Eastern Ontario the elms and other trees of that nature living in those swampy lands, in British Columbia we find a different condition of affairs. We find the water near the rivers enables the Douglas Firs to exist because of the moisture. A few miles back we get to the semi-desert of the interior where we only find plants characteristic of those arid districts, and all those plants have their attending birds and animals and insects. We find wherever we go a characteristic locality or habitat takes with it an association with plants and animals characteristic of those particular conditions. We have before us here a picture of a low river running into a big stream, the Gatineau River, running into the Ottawa, at a slightly different level. We have a barrier reef here with the waters almost all around the houses, meaning that barrier reef is submerged in years of heavy flood but sufficiently safe to tempt people to build on it. An analogous condition, I suppose, to the sides of Mt. Vesuvius, where year after year they are liable to eruptions, but yet not sufficient to prevent people from building up within the danger line, and these people at the mouth of the Gatineau build their houses there and about once in ten years they have had to tie them to trees to prevent their being washed away. But that reef is changing. There is change going on all the time. On the tops of the mountains the characteristic that strikes us is change. The frosts and winds break down the rocks and blow them away, except in the crevices, where the dust accumulates and there is characteristic change. With this change the conditions change, and no matter what condition we find in the world we find there are characteristic plants and inhabitants of those places. One of the great forces in nature which has changed conditions is shown by the glaciers. We see here (slide) the Illecillewaet Glacier, one of the grandest glaciers anywhere. We find here the glacial stream running out afroin the ice, and in those dark crevices in the front we can study the glacial ice and its wonderful colors, and the working of a glacier as it forces its way down the valley, thousands of tons of ice, grinding up the rocks and producing the milk-white stream that flows from it. There are differences in different glaciers. The Dawson Glacier at Glacier in the Selkirks is certainly one the most remarkable hanging glaciers in the world, although it is a glacier, if the

angle of descent had been a little more it would have been an avalanche. It produces a ladder-like effect in appearance, the steps being held together just at that angle where it is possible to hold. Almost equal in importance with the glacier we have the living water and the falling river. (Slide, showing Lievre River). In the stretch above, the descent is rather gradual and then comes a descent over the falls and it rushes on below that. You can see the descent is not so direct above, because of the meandering of the river. These causes and effects are all worth considering.

In the Takakaw Fall in the Yoko Valley we have a magnificent spectacle, one of the most wonderful in North America, 1,200 feet high. By the time the water reaches the base it is almost in a spray. It fills the whole valley with that damp, humid atmosphere which allows ferns and trees and mosses to grow with marvellous luxuriance. Some characteristic trees of the Selkirks (referring to slide), are the Douglas Fir and the Sub-Alpine Fir, which are found growing there. At Devil's Lake, at Banff, we find a diagram showing how some of those mountains were thrown up. (Slide showing faulted strata.) If these strata were lying flat we should find the same limestone as in all the main chain of the Rocky Mountains, but they have been twisted by the same force that opened up the valleys of the mountains. With a greater force this bend or fault would have been forced asunder and we would then have had a valley or gorge. In these great valleys we find nature keeps on filling up every emptiness and void with something to make it beautiful, and we find all bare rocks are covered with a mantle of beautiful green. Here (slide showing the opening of the Yoho Valley) we find the whole Valley being covered with Douglas Fir. The trees are from one hundred to one hundred and fifty feet in height. All through that valley you find waterfalls and forests spreading and covering up the bare rocks. You will find in your studies of local geography—that nature study development by which you will study the geography of your own locality—in those small hills of your own locality you will find the counterpart of the greater hills of the Rockies. You find a clay hill and a valley covered with grasses and trees. That is the counterpart of this valley which is filled with enormous trees. One of the things that strikes one in looking at the marvellous valleys in the Rocky

Mountains is that we have the same thing exactly here, only in smaller scale. As we look at that valley we are reminded of the same thing in Nova Scotia in the Annapolis Valley. Here in the Black Valley is the extinct course of a river, which has been robbed by the Gaspereau River, where we have one of the most beautiful valleys in that beautiful Province. The bed of the river has been taken possession of by the spruces and hard-wood trees which now cover it. It is distinctly the bed of an old river, which has been diverted into another river in agreement with that change which is going on in every place and which gives one of the charms to the study of geology. We note these changes, and tracing them and interpreting the meaning gives the geologist one of the charms of his work. The botanist finds in the trees the answer that pleases him, and in each locality we find all the things that depend on the trees—the mosses, lichens, insects, birds—and all these things come within the scope of your study and teaching. In the desks of your school you will frequently find black stains. These are, like everything else, a natural occurrence worthy of study, and if you have a microscope and get a small shaving from the desk and examine it, you will find the dark stain to be the workings of one of the methods of change or decay, one of the fungi that live on dead wood. Here we see in the cells of this piece of wood (slide), it is one of the conifers from which the wood is taken. This stain is evidence of a fungus doing the work of a scavenger, breaking down old tissues so that new plants may grow on the debris.

Dependent on plants, more largely, perhaps, than any other, is that branch of the animal kingdom, the insects. We appreciate the enormous losses every year from insects, and one of the considerations which a teacher should bear in mind in teaching nature study is the large amount of loss which takes place every year. The utility or profit of our studies is sometimes worth considering. It is frequently asked, What is the use of doing this? and it will be convenient at any rate to you to be able to persuade your trustees that you are giving their children some information of use to them, and the simple knowledge of the habits and life history of many of our insects gives us practical knowledge by which we can save enormous losses. Within the next fortnight or three weeks you will hear of large losses through what are known as cut worms. These are the larvæ

of a certain class of moths. They all have the same habits. They come out at night and injure crops by eating them at night. They hide by day and are not seen except by those who know how to look for them. There are simple remedies by which these can be controlled, these are worth knowing. You can get them from the Entomological Society of Ontario, from your own Department of Agriculture here, or from any of the colleges or institutions where the practical study of insects is carried on. There is a simple remedy which it will pay farmers to use; and it is worth your while as teachers to know this is the case, and give that information to your children. That is practical entomology. Another of the injurious insects, but a very beautiful one, is known by the name of the fall web worm. The eggs are shown (slide), on the leaf from which caterpillars hatch that spin the webs to be seen on many of our trees in winter. The beautiful white moth will appear in about a month's time, and when recognized you will know whether there is likely to be a prevalence of it or not. Perhaps there is no insect better known by name than the codling moth and every farmer and the father and mother of every pupil know the losses we suffer from the codling moth. Very few have seen it because it flies at night. Seventy to ninety per cent. of the apples grown in this country used to be destroyed by the apple worm. At the present time, by a method generally known as spraying, a large proportion of that loss can be prevented. It is worth while to tell your children that seventy-five per cent. of the loss from this insect can be saved, and is being saved by the people that use the remedy. The cureulio is a beetle that does a great deal of harm. Another well known insect is the tent caterpillar, of which there are two kinds. Nature study investigations will show you that the caterpillars of one kind on hatching the egg form a little web between the crotches and smaller twigs on the trees. These are usually found in certain parts of the tree, at the ends of the branches, and can be cut off easily. The other makes a flat web on the tree and is harder to deal with. They are so distinct you can tell which you have to deal with. There are many of these injurious insects. The Hessian Fly was well known years ago. It is a minute insect about one-quarter the size of the ordinary mosquito, but you can hardly appreciate its enormous power to do harm. In one year it destroyed \$8,000,000 of wheat. By studying its habits

we have been able to teach farmers how they may prevent this loss almost entirely. One picture here (slide) shows also an insect with four wings. That means it belongs to another order and shows that it is a parasite, and it is well known that that is the parasite on the Hessian fly that every year destroys it when it becomes too abundant. The San José scale is well known. Few people know it, it is so small it can hardly be recognized except by those who have made a special study of it. The San José scale, through the excellent work of the Ontario Government, has to a large measure been controlled and the farmers or fruit growers who are not protecting themselves are not alive to their own best interests. This insect can be studied in schools and is worthy of attention by everybody. I have referred very shortly to the wonderful discoveries with regard to the transmission of malaria and yellow fever through mosquitoes. There are several kinds of mosquitoes, and we have here (slide) types of the different kinds. It is well to remember there is no possible means by which these diseases can be carried except by these insects. It is well worth our while to know these things to protect ourselves against them. This slide does not show two beautiful moss rose buds but rose buds covered by the rose aphid or green plant louse. They suck the juice from the plant and destroy it. They are typical of one general class of insects. One general principle it is advisable to teach is that there are two classes of insects, those which suck their food as a liquid, and those which have mandibles and bite their food. Some of the large hawk moths are very useful for study for the elegance of their shape. The large caterpillars are often found on tomatoes and potatoes. One characteristic is the horny tail; you need not be afraid because it cannot sting any more than a dog can with its tail. These are two of the sphinx caterpillars; they have the tail-like form which has given so many people fear but which is perfectly harmless. It is probably only an ornament because it varies so much. These (slide) are the large caterpillars of the silkworm moths that spin the cocoons which are often found on apple trees in winter. They are perfectly harmless. Strange as it may seem to us we find the general appearance is so much like the food plant on which they live that they are very hard to find. What that resemblance consists of I cannot tell you. You would hardly think any thing could be more conspicuous than the red tubercles, but

the *tout ensemble* is such that they are hard to see. These are common objects (slides showing cocoons) and can be found by almost every teacher or scholar who will look for them during the winter. The moths are frequently found around electric lights in the spring time and are very beautiful from the lovely contrast of the colors. This is one of the large silk worm moths. This one has been used in an economic manner for spinning silk, the polyphemus moth. Strikingly protected by its shape as well as its color, it has the habit of eating into the edge of a leaf and filling up the cavity with its own body so that it is hard to distinguish it. A common object in towns is the promethea moth. The cocoons hang on lilac trees and ash trees. This moth has found out that both these trees belong to the same order, and thus you will see that insects are sometimes very good botanists. The luna moth is one of the most beautiful objects; any one who will catch one and kill it in a proper way, without causing pain, will have a beautiful object. I call your attention to this slide (a slide showing moths), because it was made in Toronto by one of our Canadian firms. All the other colored slides are made in the United States by one of the few people who can color slides in that manner. This was made by the Toronto Engraving Company, and I think is equally good, and shows we have a source at home for getting these objects. I have spoken of the advantage of studying these things from the objects themselves. I merely say this is essential in nature study to be successful, and we must study these things as we find them, and we can always find them. There is no difficulty in finding suitable objects. That desk is a suitable object, and by drawing attention to the fact that every wood has its own characteristics we can find common objects suitable, and the more common the more suitable. They will help us to see things for ourselves, will inculcate habits of care, patience and accuracy, and these are the habits we want to increase in the students put in our hands to develop into citizens. What is education for? Education is not the teaching of those subjects in your books or those things you have to use; those are only a means to an end. Education is a bringing out of the faculties of the individual child in your hand, not to make it a well filled up, educated individuality, but a useful individuality, capable of grappling with the conditions and problems which will come before it in its own fight for life. We must get away from

that savage nature which looks at everything as an enemy. Let us get to that elevated condition in which we can recognize that if a thing exists it has a useful purpose, and because it has a useful purpose, though we do not understand it, we have no right to destroy it, but let us learn all we can about it. Remove that pall of ignorance that covers the world, so that we can do away with much distress. There is no one thing to-day that gives a greater amount of distress to people who do not know so much as some others, than the little things which we do not think of. There is no tragedy in history which could not be explained away with "If they had only known," and there is an enormous mass of subjects we ought to know about which we do not know about. I consider it a duty whenever speaking to teachers and fathers and mothers who have opportunities with getting into contact with children to say this: Here in Canada to-day there is no cause for the greatest source of distress which we have to meet. What is that? You will imagine it proper to laugh at a small thing, but it is an enormous thing in its consequences, and that is this, that nearly every child and many grown up men and women are afraid of being in the dark, and there is no cause for it. It is not a small thing and a thing to laugh at, but a thing to deplore; a cause of much distress that many people suffer from. I have known many children; most children, and a great many men and women who are afraid to go out in the dark, and because of that they did not do their duty in many ways. It is a practical thing and it is your duty as teachers, given opportunity, which is responsibility, to tell children to-day that in Canada there is nothing to be afraid of in the dark. You saw that picture of mosquitoes. I have come to this conclusion, that there is nothing more dreadful in Canada to be afraid of in the dark than a mosquito, and yet people are afraid to go out in the dark. Think it over, ladies and gentlemen, and if in my feeble way I have given you an idea, make it a big thing in your lives and make it your duty to do away with it. Nature study will do that. It will do more than that; it will develop the souls of men when we recognize the beauty in nature and in everything in nature, and it will draw us to it. Poets and painters have talked of the beauties of nature, but we do not think of it, we do not think of it enough. What is nature? Let us think of it and not be ashamed to say it. Nature is merely a

name, it is a name for an effect whose cause is God, and the people who are not ashamed and not afraid to talk about God are the people I am talking to, the teachers, the teachers who have got to stand up against the wave of infidelity of people who do not think. So we are teaching about things that are perfect and made perfect by One who is above. They are perfect because they have a purpose. It is worth our while to think of these things because of that exquisite perfectness, and it is our responsibility. One of the first duties of man is to be happy so that he can make others happy, and I know of no means of making others happy better than giving them something worth while to know about and to be happy about. That you will find without fail in every branch of nature.

*ABSTRACT OF LECTURE ON TEACHING GEOLOGY
IN THE SCHOOLS.*

By PROF. A. P. COLEMAN, M.A., PH.D., Toronto.

Every one should know something of his habitation, the earth; so that it is not surprising that geology, the science of the earth, has at last made its way into the schools, though not formally announced, nor under its own name. The work in nature study in the Public Schools is to a large extent geology, as the teachers must know; while in the High Schools the physical geography and physiography are essentially departments of geology.

It is an invidious task to suggest to teachers how they should take up a subject with their classes, but the fact that geology has only recently made its way into the school curriculum, may serve as an excuse for some hints from an old professor in that department. Geological work in the schools should, however, be of a different type from that of the University, adapted to younger students having different needs from those of the science graduate.

Geology has grown so enormously of late years that even professional geologists cannot hope to master the whole subject, and the science is falling into a number of divisions, such as dynamical geology, historical geology, palaeontology, etc.; and these subdivisions are not all of equal value for teaching purposes.

It is of prime importance to present geology, not as a science of dead things, but as an account of a live earth throbbing with energy. It is not a finished earth, but is constantly changing under the action of forces which mould it from within and without. This idea of the activities of the earth, the forces that are shaping it, seems to me the most important and also the most attractive one for the young student. His curiosity is roused, and then he becomes interested in the great processes that are at work around him. This means, of course, dynamical geology, though the formal name need not be mentioned.

Another important side takes up the materials of which the earth is built, the minerals that form rocks, and the rocks themselves; and a third division gives the wonderful history of the world and of the animals and plants which have inhabited it.

The three sides of geology just mentioned, if taken up untechnically, are the best suited to interest the young student in the earth he lives on and especially in his own surroundings; for geology, like charity, should begin at home.

The work in geology should commence with a walk, and should never be entirely separated from ideas gathered in the field. The hills and valleys, the rivers and rocks, the rains and the frosts, are all texts to be read and studied right in the home region.

Every walk leads to something of geological interest, but no two regions have just the same geological surroundings, so that the work should be varied to suit the circumstances. In almost all parts of Canada one is within reach of a stream, where mud or sand or pebbles are being worked over by water, the current cutting its banks in one place, and building bars of the materials in others, changing the shape of its channel, destroying and rebuilding its shores. Or there is a lake near by, where waves are cutting cliffs, building a beach of the debris, and grinding up stones into pebbles, sand and mud.

Rain falls and cuts gullies on the hillsides; wind drifts the dust of the fields or ripples the sand on dunes; frost cleaves the rock of the cliffs; and all are powerful geological factors whose work can be watched anywhere in Canada. The work of glaciers may be illustrated by scratched stones in the boulder clay, so widely spread over Ontario, or by rounded and polished and striated rock surfaces in many places; but actual glaciers are found only in the far west of Canada, so that good pictures should be used to give an idea of their work.

In most of southern Ontario there are old shore lines with their cliffs, beaches, and gravel bars full of historical interest, showing where ice-dammed lakes did their work. These old shores are now no longer horizontal. They have been tilted by earth movements, evidence that the surface is not stable, but shifts under its load, proving that the earth has a plastic interior.

Unfortunately we have no active volcanoes in Canada, though the eruptive rocks which form the roots of very ancient volcanoes occur frequently in northern Ontario; nor have we an opportunity to study destructive earthquakes at first hand. These forces of deep-seated origin are too little understood even by professional geologists to make it desirable to discuss them in detail with young students, however.

For the structural side of geology generally some cliff or quarry will provide illustrations of the arrangement of beds of rock; and in northern Ontario the contorted ancient rocks show on the hills and beside the rivers and lakes, presenting many structural problems not yet satisfactorily solved by geologists. For the study of minerals and rocks any stone heap in the fields will yield specimens of various kinds brought down by glacial action from the north; and both boys and girls should make collections in fine weather, to be studied when outings are not possible.

Weathering may be studied in old graveyards where the marble monuments are crumbling, or along a river bank where shale is sinking back into its original mud, or sandstone returning to sand.

In many parts of southern Ontario fossils may be found in quarries or on lake shores, giving a starting-point for the wonderful history of life in the world; but toward the north the fossil-bearing rocks are absent.

My idea of the best method of taking up geology in the schools will be seen from what has been said above. The scholars should be brought into practical contact with the forces at work about them, with the causes that have shaped hills and valleys and plains, and that have hollowed the basins of lakes in their own neighborhood; and with the rocks and their structures and the common minerals of which they are composed. The fall of rain, the flow of springs, the hardness of springwater as compared with rainwater, and many other phenomena of geological importance, will serve as starting-points for the work.

To train the powers of observation and of inference on the common things that lie all about us is far more useful and important for young students than to give them the dry details of formations, meaningless lists of fossils, and the areal distribution of the rocks.

The lecture was illustrated by numerous lantern slides.

COLLEGE AND HIGH SCHOOL DEPARTMENT.

ON THE TRAINING OF TEACHERS FOR SECONDARY SCHOOLS.

R. A. THOMPSON, B.A., HAMILTON.

It seems to be a recognized fact among educationists that a student, before being allowed to take charge of a class in the capacity of teacher, must have some preparatory training besides the merely academic. We have, at the present time, for training purposes, Model and Normal Schools and the Normal College. The Normal School is the oldest institution, but its functions have materially changed since its establishment. The Normal College, the youngest institution, has had a varied career. Several experiments have been made with the training of teachers for our High Schools, Model Schools, and the higher grades of the Public School. It is to the discussion of the Normal College that I will chiefly confine myself. It appears, from certain signs, that, before this paper is read, sweeping changes may be made by the Government, in the whole plan of professional training. The Model School is to be closed, new Normal Schools are to be opened, and the Normal College is to be absorbed by the University. It is intended that each Normal School shall train yearly two hundred students. This, in my estimation, is twice too many, for the staff ought to be in a position thoroughly to test and study each candidate, so as to be able to form a proper estimate of the qualifications, both of head and heart, of the aspiring student. The Government, therefore, before spending vast sums of money in making any change, ought to be able to show clearly that the step which it contemplates will be beneficial. The chief trouble regarding the Normal College from its foundation has been the fact that the Government has punctuated with too hasty legislation, periods of virtual neglect. A very brief history of the different stages through which the Normal College has passed will possibly enable us to see more clearly just where it at present stands.

In 1885 two Collegiates were utilized for Training Schools.

Nothing in the way of lecturing, either on the philosophy of education or methods, was attempted. The teacher-in-training spent his time in observation, teaching, and receiving criticisms. The number of these Training Schools was increased from time to time as the attendance warranted.

In 1890 the School of Pedagogy was established in Toronto, and Dr. McLellan made principal. Lectures were given for six weeks in Toronto to the students, who were then sent out for another six weeks to the Training Schools.

1891 marks the beginning of the third experiment, when the three Collegiates in Toronto were made Training Schools, and the theoretical and practical work were carried on simultaneously. After one year's trial, the Board of Education in Toronto refused to allow the Collegiates to be used as Training Schools. Various reasons have been given for this action. It is alleged that the teachers requested the Board of Education to discontinue the use of the Collegiates. Here, in my estimation, the City of Toronto and the Head Masters of the Collegiate Institutes missed the opportunity of placing on a sound basis the professional training of our teachers.

From 1892-1897 the School of Pedagogy was conducted in the Normal School and had no permanent staff, with the exception of the principal, and later a vice-principal, lecturers being selected yearly from the different universities. There was no practice school and the greater part of the work was done in the amphitheatre. If the newspaper reports of that period were reliable it was time for the change which took place in 1897, when the City of Hamilton, after considerable negotiations with the Government, succeeded in having the school transferred to its present site, under the new name of Ontario Normal College. I am told that when the school was most in need of support a large percentage of the university professors were openly opposed to professional training for school teachers. A great change has come over the university authorities in nine years, and now they are endeavoring to take away from Hamilton an institution which has been doing good work, and I am informed that there is even some agitation to have the Toronto Collegiates again used as Training Schools. There is no just reason why the College should be removed from Hamilton. The principles upon which it is founded are sound, and had we not been crippled in a shameful way by the Government we would have accom-

plished much more. Notwithstanding the fact that we were not allowed to expand, that our recommendations were pigeon-holed in the department, the work of the College has been successful. To give you a better idea of how we are hampered, allow me to say that where the Government pays \$1.00 to educate a student in the Normal College it pays \$5.00 in the Normal School. Yet with all this we have evolved a good system of training, and with adequate financial support, so as to allow for expansion, the Normal College could be made under its present environment, all that is to be desired. Whatever the policy of the present Government may be for the future, I sincerely hope that the present conditions—the location of the College is immaterial—will not be entirely changed. It is not a revolution we want, but rather the stimulating effect of strong financial support.

The greatest number of complaints against the College which reach the Government appear to come from students who, failing to pass their examinations, have persuaded their local Member of Parliament and Public School inspectors to take a hand in helping them to obtain certificates. (Example.) Some graduates, also, who feel the importance of the recently acquired degree, and who have become so accustomed to the ideal life at College and its associations, express without any reason a wish that they could complete the professional course at their alma mater. These young graduates find occasionally sympathetic friends among the College professors, and thus the feeling is fostered. I venture to say the ideas of 90 per cent. of them change after attending the College, as I will endeavor to show you presently. It is said that graduates will not go to Hamilton, and yet we have 25 per cent. of the honor graduates from Toronto University this year, and among the number some of the most highly educated, as far as the class list is a test. (Example.) I have been told that some head masters object to the Hamilton Collegiate Institute receiving the prominence it does by being allowed to train teachers. This is a narrow view, and I do not believe that many head masters ever considered the question from this selfish standpoint.

In this age of specialization we have gentlemen who have become famous along special lines using their names and influence to settle, not only the problem of professional training, but, in fact, everything educational. This is a condition which it is

difficult to meet, but which does a great deal of harm. (Example.)

There seems to be nearly as many opinions among educationists regarding the function of a training school as there are at present on the correct meaning of the subject called "Nature Study." One affirms that practice work is not necessary, while another who stands as high educationally thinks practice is everything, that each student should teach at least one hundred lessons during the term.

Again, some people expect the graduate of a training school to have finished his training. The newly-made teacher must have the judgment, wisdom, tact, etc., of the experienced teacher. (Example.) This idea is absolute nonsense. The most that a training school can do is to eliminate the totally unfit and to give to the others some ideas of how they may prepare and plan their work along proper lines, of how they may avoid pitfalls, to a certain extent, in the management of their classes. Their development is but begun, and under the fostering influence of a wise head master, aided by their daily experience, it should grow and flourish. We are able to say to the young teacher when he leaves the training school, "You have the elements of a teacher in you; develop them, with the help of the useful lessons you have been taught at the training school." We are able to say to the head master, "You have a young teacher whose development you must look after; you must further aid, train and mould him to suit the conditions of your school." A training school can do no more, nor should it be expected to. Of course, the power of adaptation is stronger in some students than in others, and consequently some of these embryo teachers will take longer than others to fully develop, and will need for a longer time the fostering care of the principal, who should be patient and willing to aid by counsel and advice.

The training school has practically only one grade of certificate, and one of the arguments used against training schools is worked out by an inductive process, through the failure of the young teacher to get into his right position in school work. One particularly adapted for junior work in a public school will, on account of the remuneration offered, accept a difficult position in a high or public school. Misfits of this kind are by far too

numerous, and in my estimation some change should be made whereby the endorsement of the staff should be required before the young teacher would be allowed to accept a position. If such a plan were followed generally, as it is now in certain cases by enlightened head masters and school boards, who write to the training school for information, we would not have so many misfits among the young teachers in our schools. (Example.)

At the present time it would be a retrogression to deprive senior leaving students of the advantages of attending the Normal College and to compel them to attend the Normal School. More particularly is this the case when the present Government is planning to extend the public school course. With senior and junior leaving students taking the same professional training, there will be no incentive for students to spend two years in the high school for the purpose of getting the higher academic standing. You may ask the question, How is it, then, that university graduates should be compelled to take the work with the senior leaving student? I see nothing wrong in this arrangement, as the graduate has his degree, which will enable him to take positions in the high school where the senior leaving student would not be qualified. A teacher with good senior leaving qualifications can do the junior work of the high school as well as a pass graduate, if not better.

If the scheme, which has been recently outlined in the newspapers, is carried out and the senior leaving student is sent to the Normal School, there should be one Normal School set apart for those students, where the training would be more advanced in character.

Should the professional training of teachers be part of the work of the university? Is this legitimately a part of the function of a university? Are not our universities undertaking too many specialized courses, and possibly losing sight, to some extent, of the chief functions for which they were called into existence. It is alleged that the best students of the universities refuse to go to Hamilton to receive some practical hints on the subject of teaching, and that if the Normal College were part of Toronto University, the recruits from the graduates to the teaching profession would be largely increased. This, of course, is simply a statement which may or may not be true, but a young man who desires to teach and who refuses to go a few

miles from Toronto to receive instruction, has not much of the element of a teacher in him, and the teaching profession is on the whole better without his services. Some of these young graduates take a year or two to consider the question, and eventually decide to take the course at Hamilton. Again I think the scheme of university training impracticable if the senior leaving students are to be admitted; and with only graduates taking this course in pedagogy, will an extra year be demanded of them in which to obtain their qualifications, or will the course of pedagogy be so arranged that the undergraduates will be allowed to take it along with their other art subjects? This latter course I think is not feasible. Either the present art courses, pass and honor, are not sufficient to demand the whole attention of the student, or the pedagogical course will be neglected. The art course might be curtailed, but a step in that direction would at once keep all first-class honor men and women from taking the teachers' course. Such a state of affairs would be injurious to our schools.

University life has its advantages, but with four years of it, will there be any further advantage to the graduate who spends another year at his alma mater. If a year is all too short a time to give the pedagogical student a training in the science and art of education, is it not to his advantage to be removed from his university associations, which possibly during his undergraduate career monopolized by far too much of his valuable time? Is it a disadvantage to him to be unable to hear all the distinguished men who may be secured by the university to lecture on different subjects? Would not these otherwise splendid opportunities prove in his ease to have a dissipating effect? When you build a house, you may desire to have every little convenience of which you have ever seen or read; but such an edifice would not even be beautiful to behold, nor convenient to inhabit, and might, besides, be a sample of very poor architecture. If the advantages to be gained by hearing these celebrated lecturers are of such paramount importance why does not the Government see to it that annual courses are delivered in each of our Normal Schools, where the student, who has never had these advantages as an undergraduate, may reap the full benefit? It is more necessary for such students than for the university graduate, who has received his just share while at college.

Would it not be better for the graduate who desires to spend another year at his alma mater to break from his ideal life and associations and prepare himself at a teachers' college, removed from the university, for his future calling, under teachers trained in high and public school methods? Why cannot the college, situated where it is at present, become affiliated with the university and fostered by that institution, supplemented by a strong financial support from the Government? The ideal life of the university is not the most suitable for the practical experience which the young teacher will soon be required to undergo.

If the college is bound to be part of the university, if graduates are the only students eligible to attend, and if the college must go to Toronto, though I see no reason for this step, there should be a model school, the principal of which should have the immediate control of the pedagogical students, and he should be assisted by a staff who would lecture on methods, teach model lessons, assign lessons to the teachers in training, and criticize the same. The lectures in psychology, the philosophy of education, and the history of education should also be given by a lecturer, whose aim would be to connect the principles with the practical experience. Extended courses in these subjects, where the student fails to see the connections between the ideas obtained from the lectures and the work of the class, are useless. The chief aim of each lecturer, after pointing out the best methods of presenting the subject, should be to know each member of the class as intimately as possible. A teacher who knows his subject and who presents the matter logically may, owing to characteristic peculiarities, never be a success. One of the chief functions of the lecturer, therefore, is to study the individual. The Normal College should never become part of the university, with university professors giving lectures on the science and methods of pedagogy, and an annex high school, with an entirely different staff, supplying the practice teaching to the student. This system has nothing to commend itself, and should never be adopted.

Let it, then, be granted, for the sake of argument, that Toronto University has absorbed the Normal College, that none but graduates are allowed to attend, the Toronto graduates will no doubt feel at home, but what will be the feeling of the

graduates from the other universities who are compelled to attend Toronto? Must each university in Ontario have a training school? Let this also be granted. What about the graduates of McGill, Manitoba and English Universities? Make them establish training schools and accept this training for Ontario teachers? These conditions must, for the most part, be met by the Government and with Government money, which may not be sufficient to supply everything. With a training school attached to each university the certificates granted cannot be uniform. Might not the course be made easy in one university, so as to draw the students, to the detriment of the other universities. The Government would be compelled to set a final test, and this would be the only real test applied to the candidates. The personal knowledge of the candidate would not play any part in obtaining the teacher's certificate.

The school ought, as I said before, to be independent, at least in its staff, from the university, so as to place all graduates who attend it on an equal footing. We have 47 graduates in the class this year, 32 of whom are from Toronto University and 15 from outside universities. If the school is taken from Hamilton and established in Toronto it ought to be entirely free from municipal control. The practice school and everything connected with it should be controlled by the university or the Government, but could not these conditions be worked out in Hamilton? Although I believe in university federation in Ontario yet I see no reason why the different colleges should all be situated in Toronto, and in one particular part of Toronto.

The real reasons, to my mind, why university graduates do not qualify as teachers (although 25 per cent. of the graduate class from Toronto are with us this year) are: First, the poor salaries paid; second, the great number of scientific courses which have been opened within the last few years, to qualify the young graduates for commercial careers; third, the long period of prosperity in the country enables the graduate to get employment as soon as he obtains his B.A.; fourth, post-graduate courses, which are now given in both Toronto and Queen's, and which did not exist a few years ago. These courses did not exist when the first training schools were opened in 1885, yet in that year not more than 15 graduates from all the universities took the course. There has not been much change in the

past few years, the numbers ranging from 40 to 60. The ladies seem to be compelling the gentlemen at the different colleges to desert the language courses for the scientific, consequently the male teachers in moderns are very scarce, while they are also getting scarce in classics. There are so many new science courses at present in Toronto University, some leading to a business career, and one to medicine, that the specialists in science in our training schools will never be numerous.

Is the academic training of teachers, after all, the chief function of the university? Is not 25 per cent. of Toronto university graduating class a sufficiently large proportion to enter any one profession? More graduates attend the college annually than there are openings for in the high schools. Where will 47 graduates find positions in Ontario this summer? Our graduates will not stay in Ontario owing to the small remuneration offered. In New York City you will find a large number, who have passed through the Normal College, engaged in teaching. What is true of New York is true of Chicago and other parts of the United States. Again, a large number go to Manitoba and the North-West, where they secure much better salaries than in Ontario. I met a number of these graduates two years ago, when I made a trip out West, and in every case they expressed themselves as delighted with their prospects in the West. They become principals of the public schools in the large towns and teachers in the high schools. They have no thought of returning to Ontario, as they say there is a much better chance for a young man out there. One young man asked me if I thought he would be getting \$1,400 per annum had he remained in Ontario. These facts only emphasize what I before mentioned, that the scarcity of teachers is due to the poor salaries paid and not to the refusal of the graduates to attend the Normal College in Hamilton.

Should our training schools combine the academic and professional in the course? I do not think so, as one year is decidedly too short a time to cover, in any kind of a thorough manner, the professional part of the work. It may be urged, however, that students obtain their credentials to attend the training school without knowing the academic work. There are two ways of meeting this difficulty: First, the Education Department and the universities should so arrange the academic

test as to make it impossible for a student to get the qualifying certificate for the training school; second, the teacher of the training school can easily prevent such a student from obtaining the qualification to teach. The academic work which presents itself in the lectures on methods is sufficient. There was a movement sometime ago to compel all students who desired to attend the Normal College to take an entrance examination (academic), *i.e.*, an honor graduate in mathematics must pass an examination in the Binomial Theorem. The idea was absurd, and if the scholarship of any student is defective, his teachers in the training school will soon acquaint him of the fact. I have not found many students, since I have been connected with the Normal College, who have been very defective in scholarship. There are always a few who, through lack of scholarship, fail to pass the examination in the training school, and some of these also may be born teachers; yet should the time of the large majority be sacrificed at the training school for the sake of the very few? I have great faith in the ability of our teachers in the High Schools and Collegiate Institutes to impart knowledge in the most improved manner, and I feel satisfied that such is being done.

If our Normal School had the staff increased I believe we should get much better results. Two men, practically, undertake to do the whole work of the school. We should have men of the highest qualifications taking charge of the methods. It is unreasonable to expect one man to be equally proficient in mathematics and English. There should be graduates of the highest qualifications over each of the departments of English, mathematics, science, history and geography. The Normal College, also, should have the full time of two teachers as well as the time of each lecturer in methods for at least one-half a day each week. It is most disastrous to underman a professional institution where it is impossible for the staff to get thorough personal knowledge of the students.

University presidents and professors, High School head masters, Public School inspectors, Model and Normal School teachers and High School inspectors are all at present endeavoring to settle the question of the training of teachers for our secondary schools. Most Model and Normal School teachers and Public School inspectors do not want the Public School teachers

trained in the Normal College. The majority of the others think the High School teacher should be trained in the university. This question has increased greatly in importance in the last few years. The men who are calling most loudly for a change, and who wish to alter the present conditions, have never visited the College to obtain information, nor have they sought this information from the staff. Now, this leads me to ask have they sufficient data on which to base valid arguments? Is not a training school, where the chief aim of the student is to secure as much training as possible, likely to give the teacher-in-training a better start than a training school which is part of a university, where the student's time is dissipated by the numerous functions which are a necessary part of the university life? When I see 167 students in attendance at the Normal College, graduates from every university in Ontario and McGill, and senior leaving students from nearly every High School in Ontario, sink their identity, as it were, and work together harmoniously to further the success of their different functions, I can form but one opinion, that the training school for secondary teachers should be independent of the university. (Example.)

There are some who hold the opinion that graduates who, naturally, are preparing for High School teachers should not receive any practice in Public School work. This view I hold to be unsound, as no teacher is fully trained until he knows the development of the pupil through the different stages from primary to High School. If the study of educational psychology is to be of any value he must know the child in terms of his complete existence. If he is going to be able properly to understand and assimilate the lessons to be drawn from the historical study of education he must know the whole child. I wish to emphasize the statement made before, that no training school ever has, or ever will, graduate teachers who have reached their maximum power. What, then, should be the chief aim of the training school? Lectures should be given in the science and philosophy of education, psychology, history of education, and school management, and they should be made as practical as possible. Lectures should be given, with frequent practical illustrations on the subjects to be taught and plans of the work for the different classes should be carefully outlined. Practice lessons should be taught by the student and criticized by the teacher,

and frequent observations should be made by them of lessons taught by their instructors. The characteristics of each student should be known to the lecturers, so that the written and practical tests need not necessarily either pass or pluck the candidate. Peculiarities, whether inherent or whether due to defective methods, should be judiciously pointed out and explained to the student, so that they will not prove a stumbling-block to him in his future career.

The object to be obtained by the theoretical work and the methodology I need not stop to enlarge on. But what is the object to be gained in a training school in the practice work?

1. It enables the teacher to form an estimate of the student's power, to explain his lesson, to interest his class, to meet unexpected difficulties, which in the development of the lesson are sure to arise. On account of this last condition I have never been much in favor of the student submitting to the teacher, before proceeding to his lesson, a carefully prepared plan, as he will then be afraid to meet a side issue, for fear of spoiling his plan. A well written plan is very often followed by a poor lesson. I do not wish to be understood as advocating an unlimited license to a teacher on account of questions which may come up in the lesson. He has no right to begin with a lesson in grammar and finish with a lesson in square root. (Example.) Some of the side questions should, however, be answered, in order to make the lesson a success, and these questions could not be anticipated in preparing the plan.

2. The practical work gives some training to the student in conducting a class, though the power to control cannot be decided to a great extent in the class room. The classes must be kept orderly; if not by the student, then the teacher must step in. With this fact understood by the class, there is not likely to be much trouble for the student in keeping the class orderly. Knowledge of a student's power to govern must be largely obtained by the teacher through acquaintance with his personality. Hence it is of vital importance to have men in the training school who are experts in the study of character. How many lessons should be taught by the teacher-in-training? I say, on the average not more than one or two a week, and, if possible, some of these lessons should be continuous, particularly towards the end of the session. These lessons must be carefully

prepared, which preparation takes a great deal of the student's time and energy. After receiving his criticism he should have time for reflection before he prepares another lesson. As far as a training school is concerned it is better to have one carefully prepared lesson than a dozen imperfectly prepared ones. It is better for a pupil to work one problem out in three ways than three out in one way. Of course, if a student were given a class for a month to gain his experience you might have your young teachers more matured, but it is impossible in a training school to allow such tests. The pupils in the classes must not be used in that manner, as parents would very quickly withdraw them from such environment. The training school, therefore, has certain limitations, which it is impossible to overcome.

It is urged by some educationists that it would be a good plan to have the students sent out to our High Schools in small numbers, so that they could get more teaching. The plan seems plausible on the surface, yet to be effective the college teacher should spend some time with them, or we would have very little uniformity. Besides, the methods taught at the training school might differ from the methods used in the practice school. Both may be equally sound, but the difference might be injurious to both the student of the college and the pupil of the school.

The observations should be systematic, careful notes should be taken by the student, and these notes should be inspected by the teacher and a criticism made thereon.

I have been frequently told by educationists that the university graduates of the college were not at all satisfied with the training they obtained at the college, and that they were a unit for having it removed to Toronto and made part of the university. I at last decided to find out how much truth there was in these statements, or, rather, how general the induction by which they were reached, by writing to three or four of the university graduates from each year since the college was established in Hamilton. I submitted the following letter and questions, and I must say that the answers to some of the questions simply astonished me, as I had heard the other side so frequently that I was beginning to believe it, until the happy thought seized me to find out for myself. I corresponded with gentlemen who were graduates of different universities and who are now teaching in our schools and colleges. I do not wish to weary you, but will try very briefly to give you some idea of the results.

MODERN LANGUAGE SECTION.***THE DECLINE OF TRAGEDY IN MODERN DRAMA.***

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Tragedy is to the best comedy what a great color painting like Meissonnier's "Friedland" is to the colorless line-drawing of Chas. Dana Gibson. Using the same simile, the ordinary melodrama is a lithograph, gaudy in its colors but untrue, and the musical comedy is a Sunday colored supplement. Each within its limits may be admirable. Good melodrama and good comedy are undoubtedly artistic, more so than poor tragedy, but good tragedy is on the high tableland of pure dramatic art.

It has been said that tragedy deals with sorrow and calamity, and therefore cannot be pleasing to the human mind; that all art must satisfy the sense of beauty, and that there is no beauty in deeds of violence and crime such as are portrayed in "Macbeth."

But we must remember that the province of drama is to create and display what might be called living pictures of life. It is the general truth of the picture that must be considered. There is beauty in the earthquake, majesty in the eruption of a volcano, even though thousands of human lives are snuffed out thereby. It is likewise true that one can find the highest satisfaction in contemplating the immutable laws of life or the struggle of a human mind against the cruel odds of circumstances. Is not that great work of sculpture, "The Laocoön," worthy of classification as art? Does it not bring pleasure in the very truth of its lines, as well as in the manliness of the father vainly struggling to free his sons from the coils of the serpents? If it does, and I think no one can deny it, tragedy's place in the Temple of Art is infinitely higher. It is more than still life, it is the very struggle itself.

Let it be granted, then, that tragedy is the very flower of the greatest of the arts.

For the purposes of this paper I shall divide the world's

tragedy into four classes: classical, Shakespearean (with which I shall include the romantic), pseudo-classical, and modern.

By classical I mean the great products of *Æschylus* and *Sophocles*, and also the works of lesser importance by *Euripedes* and the army of Greek and Roman writers who followed in his footsteps. The term Shakespearean is self-explanatory. By pseudo-classical I mean the imitation of Greek and Roman art by *Racine*, *Corneille* and their contemporaries, as well as by the army of Englishmen between *Shakespeare* and the twentieth century who have chosen to write about the great men of antiquity. By modern tragedy is meant the work dealing with the life and problems of the present day.

The modern stage sees very little of the truly classical drama. London has seen this year a production of the *Electra* of *Euripides*, and recently Mr. Benson presented at Stratford-on-Avon the *Orestean Trilogy*. Occasionally there is produced in connection with some university the *Antigone* of *Sophocles* in the original Greek, but beyond that we do not go. Such productions, while intensely interesting to the literary or dramatic antiquary, are not suited to the conditions of the modern theatre, and certainly could not be appreciated by the mass of play-goers.

No one can question the great power these old dramas had upon the Greeks. Scholars, who through much study are able to appreciate the Grecian point of view, assure us that the effect must have been tremendous. Even the ordinary reader with a translation finds in them the apotheosis of all Greek art. It was because of his admiration for the works of *Æschylus* and *Sophocles*, and his belief that the ancient drama was the most nearly perfect of the arts, that Richard Wagner devised the music-drama, which finds its highest expression in the *Nibelungen Ring*.

The Greek tragedy dealt with gods or demigods, yet these characters were endowed with the manners and ways of thinking common to the Greeks of the day. The dramatists had no tinge of that historic tendency, called in later ages Romanticism. For example, if some dramatist in these days were to write a play about George Washington or General Wolfe, dress the characters in modern costume, and put into their mouths the language of Mr. Andrew Lang, we would have a work similar in many respects to the classical drama as presented in the amphitheatres

of Athens or Rome. The province of dramatic art is to reproduce life pictures, and therefore there could be no real advantage come to the theatre by a series of revivals of *Æschylus*, or *Sophocles*, or *Euripides*.

Before touching on the Shakespearean drama, which comes next in chronology, I desire to make some general remarks regarding the bases upon which drama criticism stands, and I shall then pass to the immediate consideration of the pseudo-classical school.

The work of the dramatist may be judged in three ways; by his selection, his treatment, and his technique. It is through the selection of his subject that we ascertain whether or not he really appreciates the true inwardness of drama, whether he is an artist or a writer for revenue only. It is by means of his selection, also, that he is classified either as an idealist, a romanticist, or a realist.

By the dramatist's treatment we can decide as to his closeness of observation, his depth as a thinker, his strength as a logician, and his knowledge of characterization, which, by the way, is another name for practical psychology.

By his technique we can ascertain whether or not he knows and can apply effectively those theatrical tricks which produce dramatic "effect." They are tricks, undoubtedly, but they are none the less important to dramatic authorship. The exit speech, the terse, natural dialogue, the avoidance of anti-climax, the rigid suppression of words when movement will tell the tale—all these are vital. The inclined plane, the lever and the screw, are mechanical tricks, yet the greatest engineers are glad to make use of them.

In the days when David Garrick, Dr. Johnson, and their contemporaries flourished, and all down the years until the middle of the nineteenth century, some of the most famous men in Great Britain wrote for the stage. Of course, the large majority of these scholars wrote tragedy. It was left for out-at-elbows Goldsmith to write "*She Stoops to Conquer*," and for the careless Sheridan to produce "*The School for Scandal*," two comedies which marked an epoch in the British drama. But the poets, the deans and the doctors of divinity devoted themselves to the tragic muse. Generally the selection was classical. *Andromache* wept in a thousand different ways and in reams of

stilted hexameter. Even Addison followed the general rule and wrote "*Cato*," while other heroes of antiquity were revived, paraded for a few nights and again laid to rest. Similar conditions prevailed across the Channel, and even to-day tragedy in France is the synonym for stiffness and dramatic dreariness.

Much of this Niagara of tragedy was true poetry, ethereal in fancy, great in spirit, and beautiful in language. As a result the intellectual playgoers of the age criticized it or approved it as literature. In that they were right, for undoubtedly it was literature, not drama. Let any one of those really poetic plays, "*Cato*," for instance, be put upon the stage to-day, and its effect would be soporific rather than thrilling.

The pessimist says we have declined in dramatic appreciation. Not so. Rather have we advanced to such a pitch that we have learned at last what Shakespeare knew so well. The drama is a thing of action, not of words.

These old poets failed to make their works interesting, and therefore immortal, because they had no technique. No fault could be found with their selection, especially in an age of classicism, but in technique and treatment they were impossible. Characterization was overlooked. The language of the lackey was just as beautiful, just as poetic, as that of the spotless hero, or the gentle, high-souled heroine. The people of the play were puppets, incapable of stirring the sympathy of the audience. Likewise, there was often a lack of dramatic progression, a stagnation of story, morasses of soliloquies, quagmires of words, and therefore no action.

Writers in these days who do not know the rules of dramatic construction are just as prolix, just as argumentative, as their forefathers of the elder days. But no manager would dream of producing such plays, even though they come in shoals by every mail. The discussions of the Browning Club or the deliberations of this Honorable Body are highly literary in tone, but they would be the summit of dreariness on the stage. Even the plays of Tennyson, produced with such lavishness by the late Sir Henry Irving, could not succeed.

A man may have a genius for music, but he never could express his thoughts on a violin without learning to draw the bow across the strings. In like manner, the poet who does not know the technique of the drama can never write a play. Some per-

sons imagine this technique "comes" to one, in a dream, perhaps. On the contrary it is attained only by the closest and most laborious application.

The first requisite of tragedy is an elevated, progressive and thrilling story of the useless struggle of humanity against the logic of life. It must be told by characters who act naturally, and, above all, speak naturally. If the author can meet these conditions and, without disturbing the naturalness, put poetic language in the mouths of his characters, so much the better. He has accomplished a work of genius, more wonderful than a Rembrandt picture, more beautiful than the Venus de Milo, and equalled only in the realm of art by a Beethoven symphony. With all due deference to the pseudo-classical school, formed mainly of the learned doctors of the Coffee House age, I submit that such a masterwork as I have described has not been produced in England since Shakespeare wrote "*Macbeth*."

The pseudo-classical tragedy was turgid, verbose and wearisome. Therefore it is not an occasion for tears to reflect that such works no longer find a place upon the stage. The intelligent modern theatre-goer has learned the meaning of drama, and will not be content with the poetic woodenness which his great-grandfather applauded because he knew no better. The decline of this sort of tragedy has been due to the spread of education and to the consequent raising of dramatic art standards. Action is demanded rather than fine writing.

Dramatic action is the visible evidence of the logical effect of certain conditions and stimuli on the mind of a character portrayed on the stage. Sometimes physical movement may be the visible evidence, sometimes there may be no physical movement at all; the character may stand in stony stillness, and thus show in action the storm in his thoughts.

Drama, as the etymology of the word will show, means the doing of something. To be effective there must be no halt in the action. Every word spoken, every movement of every character, must aid in the telling of the story. Take *Macbeth* as an example. The play is a close study of the psychology of despair. Its action is amazing. It is vital from first to last. The gift which Shakespeare had of creating and developing mental states, out of which results logically come, was denied to the pseudo-classical group of writers, and because of this their plays are as dead as their characters always were.

I have endeavored to show why there is no place on the modern stage for the Coffee House tragedy, but how about Shakespeare? Thirty or forty years ago his plays were given very frequently. Nowadays we are fortunate if we see two or three of them in a season. There must be a reason for this, and to explain it we must turn to the recent history of the stage.

About 1875 throughout this continent, the custom of transporting by rail whole theatrical companies, complete stage settings and properties was introduced. It being proved that the plan was workable, and that increased receipts made it profitable, it was not long before the entire stock company system of America was swept away with scarcely a complaint, and certainly with not a tear to celebrate its vanishing.

In each theatre would be a troop of players whose elastic memories were crammed with perhaps a hundred roles each. A great star would announce his visit to Toronto in "Othello" or "The Lady of Lyons." Immediately the local stage manager would assign the minor roles to the members of the stock company. The famous one would arrive, display himself in the advertised bill, get all the praise and most of the ha'pence, and would then move on to pastures new. Intelligent and concerted effort on the part of star and company was impossible under such conditions, yet some persons, seeing only blackness in the drama of to-day, sigh for those old times, the "palmy days," forsooth, when Shakespeare was acted at least once a week, and when the players knew their business.

Certainly in those days the members of a stock company were supposed to be familiar with all the actable Shakespearean plays from "Julius Cæsar" to "Richard III." A star could arrive at four in the afternoon and give "Richard" that evening, calling for the local Buckingham's head with as much savagery as if he had known the man for years and had intimate acquaintance with his moral as well as with his histrionic shortcomings. There was a fair number of new plays produced, but usually, unless written by an actor, these showed lack of technical knowledge, were badly constructed and bombastic. Often they provided good parts for a star, but did not prove popular. In such a case the stock companies returned to beaten paths, revived Shakespeare and were assured of good houses.

Even the gallery boys became such expert critics of the

Shakespearean productions that it was not uncommon for them to protest if an actor, through a brief failure of his overburdened memory, left a line or two out of his part.

That conditions were very similar even back in "the thirties" may be gathered in any work on the theatre of the period. An interesting example is given by Dickens in "Sketches by Boz," when a play-loving uncle broke up some private theatricals through his exact knowledge of Shakespeare's text. It will be inferred therefore that in stock company days tragedy, particularly Shakespearean tragedy, was by no means neglected. Rather was it the mainstay of the theatre.

Conditions have changed. Only "Richard III.," "Hamlet," and "Othello" have been given (aside from Mr. Greet's antiquarian efforts) for some years. There are many reasons for this, and while the fact of the decline must be admitted by all, and is unquestionably a subject for lamentation among most persons of literary tastes—perhaps particularly among members of the Modern Language Section—I am convinced it is not entirely a calamity.

Conscious that I shall be considered at first blush as a heretic, worthy of a torrid end, I trust you will allow me to set forth the arguments which have weaned me from dramatic orthodoxy and literary respectability.

The "Orestean Trilogy" appealed to the Greek because it was a close study of Attic life and character. When the majestic works of Aeschylus and Sophocles were produced, the auditor did not require to exert his imagination, simply to accept axiomatic facts. But when in these days we see the "Antigone" or the "Electra" given with the slow, graceful choroe dances, we must first transport ourselves in imagination to the age when these plays were produced, in order to appreciate their power. With the Renaissance, plays in Latin and Greek were written in imitation of the classics, and the scholars found it ill that the populace did not run to see them turning back the clock of time. Therefore, Latin and Greek were in time replaced by the vulgar tongue, but still the subjects were selected from the classics, and later from the legends of the Middle Ages. Thus was born romantic drama.

Now the only one of the arts which from its very genius should be contemporary is drama. Painting is for all time, the

works of the old masters are best. Music is for all time. Beethoven is greater to-day than when he lived out a weary life in Vienna. Sculpture is for all time. The "Apollo Belvidere" is more highly appreciated now than when it was first seen by the courtiers of Nero. Drama is designed to show the beauty and symmetry of the laws of life. It is universal in its appeal. No training should be required to appreciate a good play, for its aim is to deal with the passions and emotions which dwell in every living soul. These passions are just as strong now as in the time of Henry VIII., or even of King David. Indeed, they are more complex, for the race is gaining in intellectuality. Is it not reasonable to demand that modern drama should concern itself rather with the people who live in the next street to us, than with the contemporaries of Chaucer.

We are so accustomed to the historic or romantic drama that we accept the Shakespearean tragedy as modern, claim the Elizabethan age for ours—and then object if the text of our great dramatist is not expurgated for the benefit of "the young person." We say that Shakespeare was the dramatist of every age, that his characters live for all time. I grant that he is the poet of evry age, but we must not confound the terms "poet" and "dramatist." They are not synonymous. The poetry is only the drapery of the play. Venetian cloth-of-gold is just as beautiful now as on the day it was woven, but the nobles who wore it so proudly are dead.

You may contend that Shakespeare's tragedies, such as "Hamlet" and "Macbeth," deal with emotions and mental processes common to the human race in all centuries. So do the works of Sophocles. Therefore, if this argument makes Shakespeare a modern dramatist it must make Sophocles modern.

Ambition is common to all ages, but in these days a man would not seek to attain his ends by wholesale murder. He would be more likely to go into polities. Because of this very fact Macbeth belongs to the Elizabethan age, and not to ours. We cannot doubt that the groundlings in the Globe Theatre understood it perfectly. If the tragedy were to be played to-night in a cheap, low-class theatre I fear it would not be as popular as some very common melodrama dealing with the life of to-day.

Shakespeare's plays mirrored the Elizabethan age, and that

only. The opinions of Coriolanus on the common people were the opinions of the English nobility of the period. The apothecary in "Romeo and Juliet" is an Englishman, the grave-diggers in "Hamlet" are Englishmen, not Danes. Certainly Polonius is an Englishman, and we have positive evidence that Justice Shallow was a contemporary of the poet.

My point is this, that to enjoy Shakespeare's works to the full we must imagine ourselves varlets in suits of buckram, and not book-keepers, shipping clerks, and stenographers, coming to work in tweeds, bowler hats, or shirtwaists.

The whole question of the artistic shortcomings of the romantic drama lies in this matter of imagination. Pure drama should be so plain in its postulates, so definite in its axioms, that the wayfaring man, though a fool, could not err therein. Its subject must be familiar, its characters and incident probable in the light of everyday experience, and its language that of to-day. The romantic drama presupposes in the auditor the historic sense. The pure drama presupposes nothing. The romantic drama demands that each hearer be able to transport himself into the spirit of the age the play pictures. The pure drama demands only the hearing ear and the seeing eye.

But, you say, the romantic drama stirs up interest in the past, incites to reading and intellectual exercise, and brings keen pleasure to the educated classes. Quite so. Personally I am very fond of the romantic play for these very reasons. To me, a Shakespearean work brings the greatest delight. Still I must insist that such dramas violate one of the basic principles of dramatic art. Pure drama, of right, has no more to do with history than with Sanscrit. Its province is not to resurrect the dead, but to picture the living. Its appeal should be universal, and therefore it should be contemporary.

How could the inhabitant of the cheap gallery enjoy "Hamlet" when he could not accept the ghost as a likely or even possible character? How could he be impressed by the witches in "Macbeth" when he is materialistic enough to deny the existence of such beings? Believe me, it is the gallery laddie that the dramatist must succeed in interesting rather than the literary student.

The manuscript of Magna Charta, the warrant for the execution of Charles I., the chair Thomas Carlyle sat in, the docu-

mentary history of Canada in the seventeenth century—all these are matters of supreme moment to the antiquarian or literary mind, to the persons who possess that gift of the gods, the historic sense. But the man on the street frankly prefers the accomplishments and the wonders of to-day. The novelist of to-day, the historian of to-day, the news of to-day, the play of to-day, form his daily mental food. It is a natural and wholesome taste. Moreover, such practical people are in the majority, so we may say almost a universal taste.

If theatrical exigencies demanded the regular use of Shakespeare, play-goers, like their grandfathers, would cultivate a fondness for the great bard, and even congratulate themselves on their high artistic taste, thus making a virtue out of necessity. But playwrights are prolific, comedies of to-day are common, vaudeville is common, melodrama is very common, the people have mainly what they want, and all is happiness and peace, save among students, literary folk, dramatic critics and other pedants, and, may I say, members of the Modern Language Section.

We call for Shakespeare because we know the history of the English stage, and we admire that great genius who complimented the world by being born at least three centuries before he could have been naturally expected. We have read Hazlitt and Coleridge, we have a close knowledge of the poet's text, and because of our love for poetry, rather than for drama, we desire to see the plays upon the stage. But because of our own likes and dislikes we cannot say with justice that Shakespeare's tragedies are the highest examples of dramatic art. They are undoubtedly the highest form of romantic drama, but that branch of the art is artificial.

For example, the music of Richard Wagner is glorious to the musician who knows that composer's theories of leading motives, but it is not so great as the symphonies of Mozart or Beethoven, which require no special musical knowledge to delight the hearer. Pure music cannot be limited to intellectual people. It must appeal to all classes before it can be regarded as absolute. In like manner absolute drama must deal with the loves and sorrows of the men and women of to-day if its appeal is to be universal.

I have endeavored to show that three forms of tragedy, the

classical, the pseudo-classical, and the Shakespearean, have declined in these days because all have some characteristic utterly foreign to the genius of dramatic art. The classical, because of its very classicism; the pseudo-classical, because of its stiffness of treatment and its impossible technique; the Shakespearean, because by effluxion of time it has developed into romantic drama of the Elizabethan age. Drama's highest manifestation is in the picturing of the life of to-day.

But there are the modern writers of tragedy; among them Maeterlinck, Hauptmann, Sudermann, Rostand, Sardou, Stephen Phillips, and Ibsen.

Maeterlinck is an idealist, a mystic, a symbolist, whose works, though of rare beauty, can never be considered as other than dramatic orchids. His "*Monna Vanna*" is now being acted, for the benefit of the intellectuals, by Madame Bertha Kalich.

Rostand's "*Cyrano de Bergerac*" and "*L'Aiglon*" are romantic, in the pure sense of the word, and hence idealistic. They are graceful in their poetry and admirably constructed, yet they are frankly unfitted as corner-stones of a new international dramatic structure.

Stephen Phillips, whose "*Nero*" is being presented in London by Beerbohm Tree, is the only English-speaking writer of tragedy, but his work is classic in selection. He has shown no great genius in construction, but his characterization is admirable and his poetry is so polished and beautiful as to have won the warmest praise from some of the most critical literary reviewers in Great Britain. His "*Ulysses*," "*Herod*," "*Paola and Francesca*," are notable, even great works—for the intellectual remnant.

Sudermann is a prophet of the realistic school, and wins his place in "*Honor*" and "*Magda*." Hauptmann's tendency is towards symbolism, as is shown in "*The Sunken Bell*." Sardou is simply a carpenter. "*La Sorcière*," for example, can never be more than a romantic melodrama. The artifice is never concealed by the art.

But what of Ibsen? Here we have the only modern dramatist, whose works can be considered as true tragedy. His dramas are of such tremendous power that they well merit the most careful scrutiny. As to their selection, they are, of course, realistic. Some unthinking persons say immoral, but this charge

might be made as justly against the Prophet Jeremiah. Ibsen takes *a priori* facts and presents the progress from cause to effect with overwhelming strength. His characters are pre-Rafaelite paintings, so perfect are they in every detail. His construction is flawless, his piling of climax upon climax is almost terror-inspiring, and his denouement is terrible. The man does not live who could see "Ghosts" unmoved. The hypocrite does not exist who would not stir uneasily at the remorseless satire of "An Enemy of the People" or "Pillars of Society."

No literary culture is needed to appreciate the great Norseman's message. The university graduate forgets his scholarship in the face of problems of such import to the individual and to the race. Ibsen is of to-day. His plays are pictures of life, pessimistic, if you choose, but their very pessimism cannot but have a stimulating and vivifying effect upon dramatic art.

But, you say, we scarcely ever hear Ibsen. Why? Because, temporarily, I believe, the theatre has been given over to mere amusement. The musical comedy, with its cheap wit and its vulgar magnificence of color, has driven art into a corner. Even comedy, romantic and modern, has been compelled to fight for an existence. Yet I believe the tide has turned, and drama is bound to re-assert itself. The play is still "the thing." Comedy has advanced by giant strides, melodrama is improving, and I believe that it is through these lower, but none the less important, branches of the art that interest in tragedy will be quickened. The day is not far distant, in my opinion, when the works of Ibsen will be regarded as the corner-stone of the modern theatre.

Tragedy has declined, but it is not dead. It is a plant of slow growth. Only one genius is born in a generation, and he is not always a great dramatist.

TEACHING OF LITERATURE IN THE LOWER SCHOOL.

MISS MAUD M. HAWKINS, B.A., WESTON.

When I was asked to speak before the Modern Language Section of this Association on some subject connected with teaching, I chose this subject, not because I felt myself an authority, but because it is a subject in which I am much interested for many reasons. For one thing I have especially enjoyed teaching literature in the lower school, where freedom from outside examinations makes it possible to experiment and watch the results of various methods.

Again, my own memories of literature study in High School and university are very pleasant, and I shall ever be grateful to those teachers and professors who first led me to an acquaintance with the great masterpieces of our literature. It was in High School work that I first began to feel the wonder of Shakespeare through his "Julius Cæsar," and that play remains my favorite of his works, and is yet an ever-present source of delight to me. But these delights in literature study did not begin in my lower school days. The literature prescribed for the junior forms was selections, poetical only, from the High School Reader, and whatever the principle of selection may have been, the results were not good. Pope's "Essay on Man," Swinburne's "Forsaken Garden," "Rugby Chapel," and "The Bridge of Sighs," beautiful though they are, did not appeal to average children of from twelve to fifteen years. The most manifest result of the teaching was a dislike for poetry in general and for the literature periods in particular.

Now, there are many pupils in our High Schools who only attend for a year or two, and it is particularly important that they should carry with them on leaving school some idea of the pleasure and profit to be gained from literature. There are many subjects which are almost certain to be dropped on leaving school, but the work in literature can be carried on, and must be carried on, if any real education is to result. No matter how short their course may be, if pupils leave our schools with their eyes open to the beauty and wonder of the world around them and to the pleasure and profit to be gained from litera-

ture, they have made a good beginning on the lesson of life—how to learn—and in leaving the little world of school for the larger school of the world they bid fair to be hopeful pupils.

In what I have to say, then, I have in mind especially lower school pupils who are not likely to take a more advanced course, and in my conception of lower school literature very great prominence should be given to supplemental reading.

THE AIMS OF LITERATURE TEACHING.

1. The first great aim is to make the subject interesting and to create a genuine love for good reading for its own sake. I think I would adopt almost any plan that would make literature periods a pleasure. We have to deal with children from all kinds of homes. For those whose natural love of reading is fostered and wisely guided at home we, as teachers, have little responsibility. But there are others who have not such home advantages, and some who may, indeed, be said never to have learned to read, in any intelligent sense. I have in mind at present a pupil, not an isolated case, sixteen years of age, a good mathematician and language student, but quite hopeless in the English branches, who told me a few months ago that he had never in his life read a book of any kind, a magazine, or even a newspaper, except the sporting column, and who quite honestly believed himself incapable of reading. I induced him to attempt Stevenson's "Kidnapped," and insisted on it being worked at in study periods in school. If you could have seen the boy's face you would have pitied him, as, with knit brows, lips working convulsively, and pencil following the line, he struggled through the first fifty pages. After that he got along a little faster, and with special efforts on Saturdays he succeeded in finishing the book in three months.

Then there are pupils of a third class, and these are, I think, in the majority, who like reading, but whose reading has been unguided, careless, inaccurate, some of it harmful, much of it utterly useless from the culture point of view. Nevertheless, most of such pupils have an easily developed taste for good books and can be brought to like the best.

2. The second aim, then, of literature teaching should be to develop the literary taste of pupils, and where necessary to create such a taste, so that they may themselves have some way of distinguishing good books, great books, and those that are worth-

less. It is necessary here to make an attempt to direct the general reading of pupils. One great difficulty we have to combat is the accessibility of trashy reading. On book stalls, in public libraries, and also in Sunday School libraries, too, many a net is spread for the foot, or rather the mind, of the unwary young reader. On the one hand, Mary Jane Holmes, Mrs. Alexander, Augusta Evans-Wilson, and a host of others, with their impossibly charming heroines, their ultra-villainous villains, and the impossible pictures of life, fill the minds of young readers with unhealthy ideas; while, on the other hand, the Elsie books, Pansy books, E. P. Roe's writings, and others, are not so actively harmful, but weaken the powers of appreciating real books.

In order to gain the best results it is necessary to make the school literature bear directly on the home reading of the pupils. There is in most pupils a very saving literary sense; they know a good book as they know a good apple—by the taste. This is not to say that they will so readily know a bad one. Only by reading much that is real will they learn to know and avoid the false, and thus form a literary taste of their own to guide their home reading.

3. A third aim is to give some general knowledge of writers and to create interest in books, not only for themselves, but because of the men and women they represent. All healthy young people are natural hero-worshippers, and they are sure to be interested in Dickens' boyhood struggles, and Scott's heroic efforts to pay off his debts in spite of bodily suffering and weakness. This interest in the men will help in an appreciation of their writings and will lead some day to a realization of the meaning of literature, the best thoughts of the best men and women. There is instinctive love, also, of a mystery, and Shakespeare's plays have a new interest when used as a key to what manner of man he was.

I do not know whether my classes have been exceptional or not, but I have always found pupils entering from Public School singularly ignorant on this subject. With regard to Canadian literature in particular the most absolute ignorance prevails.

4. The study of literature is incomplete unless the student sees the central thought, the bit of original truth, of inspiration which is the keystone of every piece of true literature. The

careful reading of real books will reveal this without much direct teaching. There exists in boys and girls more interest than they usually like to confess in the higher things of life. To show the bearing of literature on these higher things is one of the great privileges of a literature teacher.

I come now to the more difficult part of my subject. If the aims of literature teaching be, first, to create interest in reading; second, to form a literary taste; third, to give some knowledge of great writers, and fourth, to show how literature applies to the solution of some of life's problems, the great question is: By what methods may these results be attained? I can only speak a little more definitely of some methods that I have used and am using:

1. The first way to make the subject interesting is by the choice of a good text for supplemental reading. For a first form I consider Dickens' "*Christmas Carol*" desirable from every point of view. It is always popular with children, is written in Dickens' most characteristic manner, and is full of cheery Christmas spirit. It also lends itself to varied treatment, and variety is in itself a great advantage. After a beginning is made at reading the story, the pupils can do the reading, some taking the different parts, while others fill in the narrative. From this is a short step to a dramatization of scenes from it, and there is nothing more fascinating to children than a bit of play-acting. In connection with this there is very little difficulty in having the class memorize the most characteristic passages, and they become so familiar with the story that they are not likely to ever forget it or the lessons it teaches. Other selections that can be treated in a similar way are "*Ivanhoe*," "*The Talisman*," "*The Lady of the Lake*," "*Evangeline*," "*The Ancient Mariner*."

2. To do anything in developing the literary taste of pupils it is necessary to know something of their outside reading. At the beginning of the term I ask the first form pupils to give me lists of the two or three best books they have read during the holidays, best meaning here simply the ones they have liked best. Some have not read any, but most of the class respond readily. Some of these lists are very amusing: "*Peck's Bad Boy*," and "*Dick, the Circus-Rider*," are favorites with the boys; "*St. Elmo*" and "*Beverly of Graustark*" appear on the

girls' lists. Some are honest enough to confess a preference for Grimm's "Fairy Tales" and "Alice in Wonderland." Some of the lists are marvellously good. One girl of thirteen had on her list "Rienzi," "Les Miserables," and "Adam Bede."

Taking these lists as a basis, discussion of books in general can be begun. It seems a mistake to criticize the taste of pupils at first; it is better to approve as far as possible. Literary taste must be formed from within and not from without. If it were possible to graft upon a pupil a teacher's literary taste, it would be far from desirable to do so. Their own likings must be developed, that they may have opinions of their own in literature, as in other things, and not belong to that ready-made class who buy even their opinions for a cent. It is certain, too, that many books will appeal to a boy of twelve that have no interest for me, and perhaps never had. Henty is a great favorite with boys, and, whatever his literary faults may be, he teaches them something of history and geography, and leads them to a liking for historical novels of more literary merit.

It is required that pupils should read a certain number of books each year, aside from books read in school. I allow most of these to be chosen by individual pupils, subject to my approval. Any lists I give them of books to read are made up largely from the lists they give me.

3. Not only must we know what pupils read but how they read. That most of them read very carelessly is certain. Compositions may be written on the books read, or, better, pupils may give orally outlines of the stories they have read. This is far from an easy thing for any one to do well, and it is no wonder that most of the efforts in this line are rambling and unsatisfactory. It has good results, for it shows the pupils how little they really know of what they have read, and enables the teacher to classify pupils pretty accurately. It is interesting, too, provided it is not overdone.

Another test of the way in which reading is done is a discussion of books read. This has to begin in class with a book read by all. Questions like this may be discussed: Is it interesting? Easy to understand? Who is the author, and what was his purpose in writing the book, simply to amuse or to teach? Are the characters natural, the story probable, and is the whole book, in your opinion, worth reading? When a pupil begins to ask

himself questions of this kind about his own reading his manner of reading will at once become more careful.

4. Interest in writers may, as I have said, come with and strengthen the interest in the writings. Readers of the "Christmas Carol" feel in a measure acquainted with the genial author, and information about him is gladly received. Another way is to have the class collect their own material. Last term I assigned to each pupil in one class an author, giving them a choice where possible. A month later reports were called for. Each pupil, with brief notes only, gave an account of the life, character and work of the author chosen. Some of these oral essays were very good, and even the poorest interested the class as being the work of one of themselves. At the close of each there was a moment for discussion, and sometimes the class took brief notes.

Another way of getting variety is an exchange of the best speakers in the different classes. For example, a second form girl, who is an enthusiastic lover of Dickens, gave a very complete and sympathetic account of his life to a first form class, who were just finishing the "Christmas Carol." This seemed to interest greatly both speaker and audience.

It is well to have some special part of the history of literature in view in each class. I think Canadian literature should come first, then the English novelists, perhaps, and lastly the poets.

In a study of Canadian writers one has to introduce them through their writings. Mr. Ernest T. Seton's animal stories always interest boys; Roberts, Ralph Connor, and Parker have written good stories, but much of the best Canadian literature is poetry, too abstract to be appreciated by immature minds. Lampman's "Winter Uplands" has a special interest as being the last song of our sweetest Canadian singer. Miss Wethereld's "Indigo Bird," Pauline Johnson's "Song My Paddle Sings," and some of I. V. Crawford's shorter poems, rendered more interesting by the story of her short and tragic life, cannot fail to interest. These, and others that may be chosen, combine beauty of sound with simplicity of language and thought.

There is an especial interest attached to Canadian writers because we, too, are Canadians, and even young children are interested in collecting information, newspaper clippings, magazine reviews and things of this kind about our very own writers.

It is sometimes well to study one author in more detail. Personally I am so fond of R. L. Stevenson as a man and as an author that I feel some acquaintance with him should form a part of any course of literary study. A varied course in English prose could be arranged from his works alone. The finished precision of his style, "that delicate inlay-work in black and white," presents a model of literary excellence. "Treasure Island" and "Kidnapped" are always a delight to boys. "Will o' the Mill" gives us pictures, clear and dainty, of the Parson's Marjorie and her eccentric lover, and is, besides, full of the most beautiful bits of word-painting of nature. Then "Dr. Jekyll and Mr. Hyde," terrible though strong, and lastly his essays, in which every word is chosen and placed like a precious stone, and which are, besides, so full of his compelling personality that they are as interesting as letters from a friend. To lead even a few pupils to feel his charm is worth while. His painstaking methods of work, too, are an example of one sure path to success. The story of his life, the sufferings so bravely borne, the slow coming of recognition, and those last years in the South Seas, when from far-distant Samoa the magic of his pen influenced the whole world, all these make up a story as romantic as the wildest of fairy tales.

5. In connection with this study of authors and their works I have sometimes devoted one period a week to what may be called general literature. In this period we discuss writers and books in general and more particularly recent literature. I read with the class short stories by Barrie, Stevenson, Kipling, Gilbert Parker, essays by Ruskin, Carlyle, Van Dyke, Crothers, book reviews and articles of literary interest from magazines and newspapers. The class contribute as largely as possible to the material for reading, and make brief notes on all that we discuss. Current novels are sometimes briefly reviewed by members of the class and then the opinion of the class asked on such works. One great fault in much of his fiction is that it presents life so highly colored and full of incident that real life seems by contrast dull and uninteresting. In stories to present to the class I therefore purposely choose those that present pictures of simple, uneventful life, or that depend for their interest on style, description, or characterization. Parker's "Little Babiche" and "Three New Commandments," Kipling's "Only a Subal-

tern," Barrie's "Window in Thrums," are some that I have used. I have often been surprised at the intelligent appreciation the class displayed. I know the classes have always found periods of this kind pleasant; they have been a great delight to me, and I believe they have paid in every way.

What I have said thus far applies specially to supplemental reading, but many of the poems and essays of which I have spoken should also be studied intensively as literature proper. To make this study sight work very often increases the pupils' quickness of perception, and sight selections may afterwards be taken as prepared work.

For the main work in literature I like nothing so well as Shakespeare's "Merchant of Venice," "As You Like it," and "Julius Cæsar." They are inexhaustible mines of wealth, and classes do not weary of the detailed study of them as they do of short poems. Each play can be studied as a whole, act by act, scene by scene, character by character. There are beautiful passages for memorization, and almost no limit to the ways in which they may be studied.

But this side of literature teaching does not belong especially to lower school work, and has been dealt with repeatedly before this Association by those who are much better qualified to speak on the subject than I. I will, therefore, leave the subject here, recognizing that any attempt to sum up the aims and methods of literature must be very inadequate, for they vary with the varied tastes of pupils, the tastes of teachers, and the ever-varying requirements of the Education Department.

HIGH SCHOOL TEXTS IN FRENCH AND GERMAN.

E. S. HOGARTH, B.A., HAMILTON.

Perhaps I shall make myself more emphatic in my criticism of the French and German texts at present in use in our schools if I take them individually, for I wish to be as emphatic as I possibly can. Each year makes me more dissatisfied with the Readers.

Taking the French Reader first, it is as a whole much too difficult. I have found in the present year that students who have read "Le Voyage de M. Perrichon," find considerable difficulty with some of the extracts at the beginning of the Reader. We must remember that this is the only French Reader authorized, and that these extracts, in many cases, are the first examples of French reading that the pupils have met. It is not adapted to beginners. The first extract should not be a homily. The fact that the story of "Le Maître Chat" is familiar will not justify its introduction at the beginning of the book. Note a few of the idioms that occur in it: "Ils auraient eu bientôt mangé tout le pauvre patromoine," "Il lui fit donner pour boire," "Il prit en gré," "Vint à passer," "tenir à vous," "Il lui avait vu faire tant de tours," "Grand nombre," "Faive faire une paire de bottes," "que" for "jusqu' à ee que," and others. Then the narrative tense occurs very frequently in the first extracts, while the discussion of it is not found in the grammar until the thirty-eighth chapter. The use of the subjunctive also occurs a number of times at the very beginning. "Hortib's" presents difficulties that tax the ordinary honor graduate to put them into idiomatic English, and "Waterloo" in parts defies the gods. I have heard teachers of several years' experience say that they didn't know what some parts of "Waterloo" meant.

I imagine I hear some one say it is the teacher's business to give the pupil some easy text work before he is introduced to the Reader. Yes, that is all very well; many teachers do, of course. But if we have a Reader for our High Schools, why shouldn't it be a Reader for our High Schools, not for the uni-

versity or some other place? The teacher's time is all too fully occupied with his work, if he has the best appliances put in his hands. And I maintain that the present Reader doesn't fill the conditions at all.

If the Reader were a suitable one, one in which the extracts became gradually more difficult, beginning with the very simple, the play assigned this year would be a splendid conclusion of the year's work. For I may say here that the junior matriculation authors are all read in one year in the majority of the schools. In many schools no text work is read before the matriculation form is reached. This, I think, is a serious injustice to the student, and one for which the unsuitable Reader is largely responsible. The Reader should be a development along the line of difficulty, pre-eminently. Chronology should have nothing to do with it. The text read, in addition to the Reader, should be complementary of the Reader.

The criticism offered in regard to the French Reader will apply in part to the German Reader. The first extract is much too difficult. Some of the forms and constructions are archaic. Several of the extracts are suitable enough, as were a number in the French Reader, if the introductory part leading up to them had been well chosen and properly arranged. But why should all the German Reader, with the exception of the poetry, consist of fairy stories and the like? There is too much sameness about it. Then, to make matters worse, we have a collection of somewhat similar stories in *Waldnovellen* and *Traumereien*.

Stories of life should be largely substituted for the fairy stories, so that the pupil will have some idea of German literature, and acquire a liking for it in its best form. We must not confuse good style, however, with difficult German. They are not necessarily the same. (Thomas and Hervey's German Reader; "*Le Tour de la France.*")

The question then arises: What would constitute a satisfactory introductory Reader in French or German. The same general features should characterize each. The first part should deal with the common experiences of life, and in a simple way. The vocabulary should be such that it might be used in conversation. Extracts might be taken from "*Le Tour de la France*" for part of the French Reader. The stories by Dumas and Daudet would also form a part. But I should like to make this

emphatic. There should be a Reader for those who have been studying a language a month, or two months at most. Bring the foreign text before the student as early as possible, but bring a style that is adapted to his present capability. It will create an interest in the work which the formal study of grammar cannot kill. (Enlarge.) (Knowledge of words in proper context.)

Modern languages had a long and bitter struggle for recognition as major studies on the curricula of the universities of this continent. We are throwing away one of the most valuable weapons if we throw away, as we have here thrown away in Ontario, the use of easy French and German texts full of life and interest. We shall succeed in making our subject popular and profitable by making it interesting, for thereby we make it known. There is no surer way to kill interest than to confine the study of a language to an examination of the bleached bones of that language. There is no surer way to create interest than to present it as a living thing with life and activity. Many a student becomes disgusted with the study of a language because he is kept too long grinding away at the grammar, and then is introduced to parts of the literature which require too much use of the dictionary. I do not wish to be understood as implying that a student should not work hard and be made do hard work, but merely this: There are enough difficulties in the path of the ordinary student if the best means are employed. The teachers of the classics have recognized this. They are wiser in their day and generation than the children of light—I mean the teachers of modern languages. They have felt the handicap which the classics labored under in not having easy texts to begin with. They have attempted to remedy this defect. They have translated into easy Latin the simple and popular stories of our modern English authors, while we have thrown away the very thing they have been seeking for, and eventually obtained, with considerable effort.

Is it merely a coincidence, or is it a case of cause and effect, that following our abandonment of a rational Reader and a rational way of introducing modern languages, they have been wiped off the curriculum for junior leaving teachers? They do not stand even as a bonus. As far back as I can remember they were on the curriculum for even third-class teachers as a bonus, and for second-class teachers as an option. I have asked, and I

repeat it: Is it merely a coincidence that with our throwing away of our privilege has disappeared the recognition of modern languages as a requirement for our Public School teachers? At any rate, let us accept and retain what the gods have provided. Let us have a Reader that will conserve all the advantages that the teaching of modern languages have naturally over the classics.

If a Reader and Grammar are bound under the same cover there seems to me to be no valid reason why they should not be related in vocabulary. But reasons do present themselves why the vocabulary of the Reader should consist, as I have said, of words referring to the common experiences of life, and then the introductory part of the Grammar should conform, in part at least, to the vocabulary.

The first part of the Reader should be simple, but the knowledge of it should be thorough. We must not confuse simplicity with superficiality. Where the text is too difficult the knowledge will, of necessity, be superficial, for the beginner is not prepared to cope with or remember all the difficulties which present themselves in an ordinary extract from French or German literature.

Coming now to the constructive part of my paper, I should have the Reader proper consist of five sections, divided approximately as follows: The first twenty pages to be made up of easy extracts, dealing largely with the common experiences of life, simple anecdotes and interesting stories, put mainly in the present or the past indefinite tenses. The second, third and fourth sections of twenty pages should contain one story each of life; the remainder might be of the nature of some of the stories in the present readers. The fifth section of twenty pages should contain a collection of the choicest simple poems of the language. Almost all those in the present Reader might be retained. There should be two other sections to the book. The next, or sixth, should consist of suggestive and occasional explanatory notes, with short biographical sketches. The seventh, and last, section should contain a vocabulary of much the same nature as contained in the present Readers, *i.e.*, with the irregular forms of verbs the student should be referred to the infinitives for their meanings.

I should have prescribed for matriculation work the first

extract, one of the three which follow, taking them in successive years, and about ten pages of poetry. In addition to this there should be a good modern live story or play consisting of from forty to sixty pages at least if prescribed texts are to continue. This will ensure every student having read at least one hundred pages of text before entering the university. I shouldn't object if this amount were increased for hasty reading, and it will have given him a look-in at several styles of French and German literature.

The section that changes each year should be made the basis of the connected prose on the examination. As things are at present there is no definite work prescribed, and the whole of the work read cannot be thoroughly mastered in the year. I think some work should be mastered in detail, while a larger amount might be read more rapidly. Some of it might be taken as sight work if found desirable. This would give the student a greater facility in reading the foreign tongue and in getting the spirit of it, while the careful, thorough study of the shorter section would be a check on superficial and careless work. And here, in parenthesis, I might say that in my opinion each French paper should stand on its own merits and the 33 per cent. should be exacted on each paper, if the suggestions made were acted on.

With such a Reader I am convinced that the first section would be mastered before the student reaches the matriculation form, and perhaps one of the following sections, because the style of the text would appeal to the student just beginning the language, and the language would be made, as it should properly be made, the basis for learning the grammar, the grammar serving more to unify the student's knowledge and to become more of a reference book.

The fact that the Reader contained a couple of sections that were not prescribed for any one year would give some variety to the teacher's work. It would also give an easy opportunity for doing some special work with students who were particularly apt at language work.

It is difficult to treat the poetry in a satisfactory manner for beginners, but it seems to me that the best way is to have it memorized, *i.e.*, portions of it. It is almost sacrilege to take some of those gems, those works of art in a foreign tongue, and break them up into what is even often very crude English prose. With

such a Reader the work should not become extremely monotonous for at least ten years, and that seems to be about the life of a language Reader. The whole book would not contain more than three hundred pages, and might be published, I suppose, for 75 cents. If it were published independently of the Grammar it would often facilitate work, especially in our larger schools, where two or more members of the same family make use of the same books.

If texts continue to be prescribed, the present method seems satisfactory, the texts changing each year. Hachette publishes a wide series of comparatively easy texts in French at 6d. apiece. If each teacher is allowed to choose his own additional texts, this Modern Language Association should have a standing committee to keep the teachers informed as to the best modern publications of interest to them. The question as to whether this additional text now being used should be a play or a story will be answered according to the nature of the book. My own preference, as a rule, has been for the story for junior matriculation work.

The French texts for senior leaving and honor matriculation have not been at all uniform. One year they have been rather too easy and quite long; another year, as, for example, last year, they were much shorter and more difficult. This year they seem to me rather too easy, as compared with the junior matriculation work, and as compared with last year's work.

The German texts this year are considerably longer than the French and more difficult. "Die Freiherren von Gemperlein" is a splendid story from several standpoints, and I am pretty well satisfied with it. But one of the comedies would have been enough in addition, especially when compared with the French authors assigned. But I am not so much concerned with the authors for the senior leaving. A teacher can do more than the work assigned frequently without any injury to his pupils. I find in my classes that some of the pupils can do much more than the others, and for these I provide some interesting text for them to read by themselves. The amount of text prescribed should be the amount that the ordinary student can cover, with earnest application.

It is not within the province of this paper to discuss our French and German Grammars, although the subject is inti-

mately related to that of the texts. I have hinted before that there does not seem any reason why the vocabulary of the first part of the Grammar should not have much in common with that of the first part of the Reader, especially if they are bound under one cover. Perhaps I had better admit that it is impossible to have an ideal book, but we must aim at the ideal.

In conclusion, I wish to state that I have not written this paper for the sake of writing a paper, but in order that some definite action may be taken, and taken at once. I leave the subject with you, and trust that some serious discussion will be offered on the question at issue.

*SOME BY-PRODUCTS OF MODERN LANGUAGE
TEACHING.*

J. S. LANE, B.A., CHATHAM.

By modern language teaching I mean, for my present purpose, the teaching of French and German in the secondary schools of Ontario, and before discussing the by-products of this industry it will be necessary to see what its chief product is. You here are all, doubtless, familiar with the course in these languages prescribed for our High Schools. The pupil is expected to become fairly familiar with the accidence, and acquire a sufficient vocabulary and knowledge of the syntax, to enable him to translate English sentences into French and German; he is called upon to read what looks like a very formidable list of French and German books, and also to be able to translate simple passages into English at sight; and, finally, the High School inspectors are supposed to see that supplementary reading and oral exercises are not wholly neglected. All this appears to be a good deal for a High School pupil to learn in addition to the claims which the numerous other subjects of the course make upon his time, and if he really learned enough French and German to be able to make, say, 75 per cent. upon fair examination papers he would, no doubt, have acquired a good elementary knowledge of two modern languages, but as you all know, 50 per cent., or even 35 per cent., is much nearer the average standing of our candidates at the matriculation and everybody seems to be satisfied, except in the case of a few candidates for scholarships. Practically no knowledge, I might almost say absolutely no knowledge, of the literatures is required, and I am quite safe in saying that absolutely no knowledge of the geography, the history, the political position, the importance in trade, science, art and culture generally of France and Germany is demanded or even expected of our pupils when departmental examinations. And if these results are attained they have completed their High School course and leave our schools. The chief product, then, of our modern language teaching is a limited amount of purely linguistic training. Our

abiturient may have got three words for one idea, but if he has gained a wider outlook upon the world and man it has been gained quite incidentally and is not at all necessary to a triumphant conclusion of his training in French and German.

And it seems to me that even the comparatively few students who go to our universities and there pursue the study of modern languages, receive a training which is too purely linguistic and literary. An enthusiastic German philologer has defined philology as the study of man, his ways and his works, and if the study of philology were generally conceived in this way it must commend itself to all except our very modern friends, the "nature study" people, but unfortunately most scholars take a much narrower view of it. Freeman, the historian, in his "Sketches of Travel in Normandy and Maine," affords us an illuminating glimpse of the life which lives too exclusively in the past. He had engaged a man to drive him from Laigle, I think it was, to St. Evroul. He was going to St. Evroul principally in search of the home of Orderic, "the kindly, gossiping, rambling old monk," who celebrated his patron, Ebrulfus. Before St. Evroul was reached the driver stopped before some modern buildings. Asked why he stopped there he said that was where the landlady at Laigle had told him to stop. There were the great glass works for which St. Evroul is now best known, and Freeman exclaims, in much apparent disgust: "And it was the St. Evroul of the glass-works that we were thought to have set forth to see, not the St. Evroul of Orderic or of St. Evroul himself." Now, I repeat that I consider that a narrow view to take. We can take a due interest in English and Norman history—if I had not been interested in it I should never have seen the passage; we can take a philological interest in the name Evroul, Latin Ebrulfus, Saxon Eofor-Wulf, N. H. G. Eberwolf, *boar-wolf*; we can wonder how a saint came to bear such a ferocious name, and yet, at the same time not necessarily deem the glass works beneath our notice. No doubt if it had been a question of Venetian glass, a decent number of centuries old, Professor Freeman might have condescended to regard it, but I beg to enter a plea for the study of the twentieth century as well as of all those preceding, and to express the hope that we shall find our modern life just as interesting as the Middle Ages or the yet more distant past.

"The poetry of earth is never dead," but is even now to be read by him who cares to do so. Life is still

"For ever warm and still to be enjoyed,
"For ever panting and forever young."

There never was a time when life was richer or more poetical than the present, although just now we must seek in deeds rather than words the expression of that fulness of energy which is throbbing as vigorously as in the days of the great geographical explorations; and just as that age was followed by great literary and artistic movements, so may we look forward to the formal poetical expression of the spirit which is inciting the men of our own day to the discovery of continents not marked upon any map, and to the practical application of the knowledge gained in their laborious and ingenious researches. And while waiting for this let us try to realize to the full the spirit of our own times and to appreciate its poetic worth. Let us try to combine the scholar and the man of affairs, the merchant and the artist, the engineer and the poet; let us, in short, appreciate and exercise at once both the intellect and the emotions.

Gustav Freytag, in "Soll und Haben," expresses the antithesis between the scholar looking only to the past and the energetic but imaginative and refined young business man of modern Germany in a conversation between Wohlfahrt and Bernhardt Ehrenthal.

"How poor our modern civilization is in great impressions," says Ehrenthal, "you must often feel that in your business; what you must do is so prosaic." "On the contrary," Wohlfahrt answers, "I know nothing that is as interesting as business. We live before a variegated web of countless threads, which are spun from one human being to another, over land and sea, and from one continent to another. They are attached to each detail and connect it with the whole world. Everything that surrounds us brings before our eyes most remarkable events in foreign lands and every human activity; on this account everything becomes fascinating," and so on, the higher human interest of various business details being elucidated.

And what is true of trade is true of the mechanic arts, of engineering, of mining, and of all the various activities of what is commonly called by superior persons our sordid modern life.

To me the Simplon tunnel is as interesting as Hannibal's passage of the Alps, the quest for gold in the Yukon and silver in Cobalt as romantic as the ore hunting expeditions of the companions of Columbus, and even in the patent medicine advertisements I can find the analogue, at once of the spirit which led Ponce de Leon in search of the Fountain of Youth and of the unscrupulous rapacity of the buccaneers of the Spanish Main.

In the last number of the *Contemporary Review* there are two articles that illustrate very well the point for which I am contending. The first is entitled "Shipbuilding and the Shipping Industries of Germany," the second, "The German Drama of To-day." Both are well written and give a concise view of the fields severally surveyed, and I maintain that the essay which deals with the more practical subject is as interesting and important to the student of German as the essay which has a purely literary theme.

Until we can succeed in getting the conditions under which we are at present working improved, we must make the best use we can of the works prescribed for use in our French and German teaching, and I will try to indicate in a few words some things that may incidentally be taught to the decided advantage of our pupils, and which will produce a gratifying increase in the attention and interest with which they pursue their work.

Social conditions, forms and usages are so commonly referred to that it is unnecessary to give any specific examples of texts upon which to base your little sermons upon sociology, comparative etiquette, morality, and ideals of life generally. The only danger in this respect is of overdoing the matter. In such works as the "*Waldnovellen*" we find many allusions to such things as diet, dress and amusements, many of which admit of the instructive use of photographs or engravings. For instance, I have an engraving of the scene in Freytag's "*Journalisten*," where Bolz and the worthy Piepenbrink drink *Bruderschaft*.

Historical references are common. For example, in Jean Bart's Life the naval programme of Louis XIV. has to be referred to, and also the stringent measures against duelling introduced by Richelieu. Then we have more modern history, as the Napoleonic period in Picciola and Waterloo. I need scarcely say here that in the latter case the references and state-

ments are grossly misleading, not to say absolutely incorrect. Hugo was a great poet, but as an historian he is not reliable: "Imagination bodies forth the forms of things unseen."

In the "Iron Cross" and the "Last Class," the greatest events in the recent history of Europe are alluded to. It may seem unnecessary to speak of the Franco-German war of 1870-71, but I rarely find a pupil who has even heard of such a war until it is mentioned in connection with our work.

The stories just mentioned call for a little geographical study also, but we had better material for this a couple of years ago when we read "Das Kalte Herz" and "La Belle Nivernaise." We then had personally conducted tours along the Neckar and Rhine, and so on down to Rotterdam, and from Paris up the Seine and the Yonne, and through the canal system connecting the northern and southern watersheds of France. Here, too, we consider the commercial importance of the canals of France and Germany, and we notice that these artificial waterways not only supplement the natural channels, but sometimes replace them for certain purposes, as in the case of the Dortmund-Ems canal, which was dug to enable German traffic to pass through Germany to the sea, and to transfer to Bremen and Hamburg freights which would otherwise have gone to Dutch ports.

Perhaps I have said enough about these *Realstudien*, and I will turn, just for one moment, to the fine arts. The translation into English of the few poems contained in our French and German readers is, of course, a part of our chief product, but I find it advisable as well to take up the subject of versification, at least in French. Then there are a number of the poems which have been set to music, and here we may endeavor, at least, to see how the musician has expressed by means of his art the emotion which underlies the poetical expression of the thought. Such are "Die Lorelei," "Du bist wie eine Blume," "Das ist der Tag des Henn," "Kennst du das Land?" and "La Marseillaise." In some cases, too, we can call upon a third art. Engravings of "Die Lorelei," "Du bist wie eine Blume," and "Mignon" are available, and in the case of "La Marseillaise" we have photographs of that magnificent group of statuary by Rude, "Le Chant du Départ," which forms the chief glory of the Arc du Triomphe, a group before which Carpeaux, himself one of the greatest of modern sculptors, says he could never pass without taking off his hat.

And thus, although our means are feeble, in a small way we compare art with art, and try to feel in each case the idea of the artist as expressed through the medium of his special art, and perhaps we shall be the better able, one day, to understand what art is, and its significance to the soul of man.

These, then, are a few of what I have chosen to call the by-products of modern language teaching. Now just a few words in conclusion as to the facilities which should be placed at our disposal to enable us to preserve as large a proportion as possible of them, as well as to increase our main output, and I hope not to fatigue you when I offer a few, a very few, statistics, taken from that somewhat confused and misleading collection of statistics, the Report of the Department of Education for Ontario.

The total enrolment in the High Schools and Collegiate Institutes for 1904 is given as 27,709, the average attendance as 16,730. This great discrepancy is accounted for by the peculiar system of book-keeping in use at the Department of Education. The pupils who left the schools at the end of the school year are included, as well as those who entered at any time during the fall term, and so we have an enrolment given which is about 50 per cent. greater than the actual enrolment at any one time. To arrive at the number actually studying the various subjects at one time, then, I have taken two-thirds of the numbers given in the Report. This gives us results which are at all events approximately correct.

On this basis, then, we find that: 10,692 study French, 2,182 study German—12,874 study modern languages; 3,176 study zoology, 7,642 study botany, 6,026 study chemistry, 11,891 study physics, 124 study mineralogy, 28,859 study natural sciences, 2,118 study typewriting. Now we find that for the benefit of the 28,859 who study the natural sciences apparatus of the total value of \$90,611 has been provided, as well as special rooms equipped for use as laboratories; the typewriting pupils have the use of \$16,388 worth of typewriters, as well as special rooms where they may use them without let or hindrance.

What provision is made for the modern language pupils? We have no complete statistics upon which we can rely, but I have made an attempt to find how much money has been devoted to our special needs in the following way.

The total value of the libraries in our High Schools is put at \$67,283, the value of maps, charts, etc., at \$12,395. Now, in Chatham we have a library valued at \$786, and maps, etc., valued at \$201. The books which bear any special relation to French and German are a couple of dictionaries and a set of books for sight translation, total value about \$15. We have also a French map of France and a German map of Central Europe, worth \$5 apiece. Our books, then, represent about 2 per cent. of the whole library and our maps about 5 per cent. of the total value of the maps in the school. If we apply these percentages to the totals given in the report we should have \$1,345 worth of books and \$620 worth of maps in Ontario, specially designed for the use of our modern language pupils. I have reason to believe that these amounts are too great rather than too small, particularly in regard to maps, in this case perhaps ten times too great.

It seems evident that we are not fairly dealt with, and the practical question is, What can we do to have the inequality adjusted? I think we must depend largely upon our individual efforts; we are not likely to get much aid from the authorities just now. Dr. Seath issued last year a circular to the High School principals, which occupies some eighteen pages in the Report, and of these eighteen pages one paragraph of fifteen lines is devoted to foreign languages, dead and living, and that paragraph ends as follows: "But until the character of the University examination scheme changes, improvement can hardly be expected." He throws the blame on the universities, and yet we find that of all the pupils who attended our High Schools in 1904 only 937 passed any matriculation examination, and I do not suppose that 50 per cent. of these are now attending any university.

But Dr. Seath does not roar so gently where the natural sciences are concerned: "The ordinary physical and chemical laboratories may be made to serve for the four subjects of the elementary science course. Where it is at all practicable, however, it would be well to have a room reserved and specially fitted up for biology. As has been pointed out above a herbarium and arboretum and a museum are also indispensable." And so on, aquaria and terrariums, and all the modern improvements.

Now I am not so *unbescheiden*, as the Germans say, as to ask for three rooms, but I think the time has come when the French or German teacher should have one room where he can teach his classes without having to supervise the actions of another class, and I think, too, that room should be provided with a phonograph, and be adapted for lantern work. The phonograph and the lantern are exceedingly useful adjuncts.

As I said before, we must rely mainly upon ourselves to secure these desired improvements in our condition. Let us be instant in season and out of season; let us agitate and complain and urge, and if we perish we perish; let each of us earn the right to have carved upon his tombstone:

“Denn ich bin ein Mensch gewesen
Und das heisst ein Streber sein.”

*THE EFFECT OF THE NEW REGULATIONS ON FRENCH
AND GERMAN IN THE HIGH SCHOOLS.*

G. L. MACDONALD, B.A., INGERSOLL.

(A *Summary.*)

In introducing the discussion the speaker showed how, in the new curriculum for junior and senior teachers' examinations, French and German were put in an unfavorable position. Though allowed as an option for senior teachers, this option was unlikely to be taken, as chemistry was compulsory for junior teachers. Besides this, chemistry and mineralogy were not a fair equivalent for French and German, which demand much more work on the part of teachers and pupils than the two sciences do.

As the teachers' course determines to a great extent the work of the schools outside of the larger cities, and as the principals try to arrange the time-table so as to have as few classes as possible, the unfavorable position given French and German means that few candidates for teachers' certificates will take these languages under present conditions. This means less time allotted for these languages in the schools, and hence an inferior grade of work done. If proper time were allotted to the subjects the Regulations would not prove an unmixed evil from the stand-point of the teacher of moderns. Too many pupils have been taking French in our schools to permit of first-class work with the limited time at our disposal. Statistics show that about 90 per cent. of the pupils entering our secondary schools begin the study of French. If half as many took the subject better work could be done, as there would be more time for individual drill, which is very necessary, especially during the first two years' study of a language. If this drill is to be secured, however, the time given to French and German must not be lessened. It is to be feared that the tendency of the new regulations will be to do this.

It was shown that in the case of many pupils better mental culture is secured by language study than by science study. All

are not constituted the same with regard to mental tastes and aptitudes. The curriculum for teachers' certificates should recognize this fact, and make the language option an effective one. The teachers of the languages are capable of doing their work as efficiently as the teachers of science are of doing theirs. They should be allowed a fair opportunity of doing it, in the interests directly of the pupils of the High Schools to whom language study appeals, and indirectly of the pupils of the Public Schools who may be taught by these when they secure teachers' certificates. A mind well trained by language study will deal with even the nature study part of the Public School curriculum more effectively than a mind illtrained by science study. Let the students of our High Schools be free to follow the course of study suited to their individual needs.

NATURAL SCIENCE SECTION.

HISTORY AND TEACHING IN CHEMISTRY.

W. L. GOODWIN, KINGSTON.

Earth, water, fire, and air. These were the "elements" of philosophers and chemists from the time when men began to think about such things until the dawn of modern chemistry—a period of at least 2,500 years. They may well stand to us for the materials and energies which form the subject-matter of chemistry, for the investigation of the *real* earth, water, fire and air—not the mystical essences which went by those names—has given us the basis of modern chemistry.

To the earlier investigators these four things seemed closely united. When fuel burned so as to produce fire, the greater part of it became air, which, however, condensed in part to water when it was cooled. What remained of the fuel after the fire went out was earth, the ashes. Water when boiled over a fire, after a time deposited some earthy matter, from which it was concluded that fire and water combine to form earth.

In the second half of the seventeenth century an interesting group of Englishmen (including an Irishman, as usual) were investigating the nature of fire and air. The Hon. Robert Boyle pointed out the unsatisfactoriness of the metaphysical conceptions which prevailed regarding the composition of substances, and declared in his "*Sceptical Chymist*" (1661) that the right way to discover the elements is not by speculating on the nature of substances and phenomena, but by decomposing substances to the utmost. This quiet, retiring Irish gentleman, living at first on his estate, and later in Oxford and London, and devoting his whole life to experimenting and writing, did much to elucidate the nature of fire and air. In Oxford he associated himself with the founders of a scientific society, which was incorporated in 1663 as The Royal Society. He proved by his experiments that air is necessary to combustion, except in the case of such mix-

tures as gunpowder. His speculations on the composition of the atmosphere are acute and, indeed, prophetic. He suspects three kinds of particles or corpuscles in air, "the first, those numberless particles which, in the form of vapors or dry exhalations, ascend from the earth, water, minerals, vegetables, animals, etc., in a word, whatever substances are elevated by the celestial or subterraneal heat, and thence diffused into the atmosphere. The second may be yet more subtle, and consist of those exceedingly minute atoms, the magnetic effluvia of the earth, with other innumerable particles sent out from the bodies of celestial luminaries and causing by their impulse the idea of light in us. The third sort is its characteristic and essential property, I mean permanently elastic parts." This elasticity or "springyness" of air was the special subject of Boyle's investigation. The law still called by his name was discovered, a remarkable achievement considering that Boyle was experimenting with an invisible substance, the very existence of which was inferred only from what one might call secondary evidence. He ascribes the rusting of copper, marcasite, etc., to the action of the air, and accounts for its power as follows:

"The difficulty we find in keeping flame and fire alive, tho' but for a little time, without air, renders it suspicious that there may be dispersed through the rest of the atmosphere some odd substance . . . necessary to the subsistence of flame . . . It also seems, by the sudden wasting or spoiling of this fine substance, whatever it be, that the bulk of it is but very small in proportion to the air it impregnates with its virtue; for after the extinction of the flame the air in the receiver was not visibly altered; and for aught I could perceive by several ways of judging, the air retained either all or at least the far greatest part, of its elasticity, which I take to be its most genuine and distinguishing property. And this undestroyed springyness of air, with the necessity of fresh air to the life of hot animals, suggests a great suspicion of some vital substance, if I may so call it, diffused through the air; whether it be a volatile nitre, or rather some anonymous substance, sidereal or subterranean; though not improbably of kin to that which seems to be necessary to the maintenance of the other flames."

Thus Boyle conjectures the presence in air of a substance which is essential to fire, rusting, and the life of animals.

Hooke, a contemporary of Boyle's, made the same suggestion of the presence in air of particles of a substance akin to nitre, and suggested that nitre contained such particles.

The third member of this group was John Mayow, who graduated from Oxford in 1661 at sixteen. In 1674 he published a remarkable treatise on nitre, spirit of nitre, respiration, etc., in which he suggests that the atmosphere consists of two kinds of particles (1) "nitro-aerial particles," necessary for combustion and for the support of animal life, and (2) the portion left after the nitro-aerial particles are removed. It is incapable of supporting either life or combustion. The nitro-aerial particles are present in nitre, as shown by gunpowder. He quotes Boyle's experiment of making gunpowder burn under water. He notes that metallic antimony gains in weight when it is set on fire by a lens and burned, and suggests that this gain may be due to the absorption of nitro-aerial particles and to the fire. All acids, writes Mayow, contain "fire-air" particles. This he concludes from the effect of nitric acid on antimony and from the production of "sulphuric acid" or "spirit of sulphur" by combustion of sulphur. These and many more acute conclusions founded on his experiments and observations show how close Mayow had brought us to a clear comprehension of the nature of combustion and of the composition of air.

But the work of this group made little impression on their contemporaries. Boyle's views carried great weight, but while he knew of Mayow's work, he does not seem to have accepted his conclusions with any enthusiasm. Had he done so, or had the younger man lived (he died at thirty-four) to speak for himself, chemistry might have been saved from an *a priori* theory which led it astray for the next hundred years.

In 1668 and the following years there appeared in Germany a series of treatises by Dr. Johann Joachim Becher, one of those old scholars of prodigious learning—a voluminous writer withal. The most significant of these volumes is "Chymisches Laboratorium, or Untererdeische Naturkündigung," usually known by its Latin name of "Physica Subterranea." The writer, by the way, apologizes in his preface for writing in his mother tongue instead of in Latin. He begins with the creation of the world and discusses the origin of minerals, gems, ores, and their relations to air, water, and earth.

But our present interest is in his theory of combustion, which he conceives to be due to the loss of a subtle substance, *terra pinguis*, which escapes from the combustible substance into the air. His disciple, Stahl, a brilliant man, elaborated this idea and founded the phlogiston theory, which taught that combustible substances are compounds of the "principle" of combustion, phlogiston, with something else. The phlogiston is driven off in the process of combustion and the calx or earth, or other residue remains. Thus sulphuric acid is sulphur minus phlogiston; litharge is lead minus phlogiston. The theory is diametrically opposed to the facts, particularly to the well-known fact that many substances gain in weight when burned. Jean Rey had shown this to be the case for tin and lead, and Mayow in 1674 had reasoned clearly that sulphuric acid could not be present in sulphur, but that it must be formed by the combination of the sulphur with the nitro-aerial particles. But the brilliant German doctor captivated the chemical world with his attractive theory, which had the merit of bringing within its compass a wide range of phenomena, including combustions, rusting, calcination of metals, reduction of metal ores, etc. It thus served as a principle for classification of phenomena which were in reality chemically alike. It is evident, however, that the discovery of oxygen in the air, a natural sequel of Mayow's work, would have served the same purpose, and that without hindering the progress of investigation. The phlogistonists never took weights into account. In fact, in the later years of the theory it is recorded that a certain chemist who asked about some disturbing rumors remarked, when he was told about the increase in weight, "Is that all? That is of no importance." The theory was almost sacred in the eyes of its adherents, and they were numerous, including, indeed, most of the leading chemists of the day. But toward the middle of the eighteenth century the investigation of gases began to go forward. Dr. Stephen Hales, an English clergyman, and an enthusiastic botanist, engaged in the study of air in relation to vegetable physiology. He distilled plants and collected the gases by means of the pneumatic trough, his own invention. We are so accustomed to collecting gases over water, by bubbling them upwards into a vessel full of water turned upside down in another vessel of water, that we are

apt to forget that this simple apparatus was at one time unknown and had to be invented. For this service Hales is called "the father of pneumatic chemistry." We are also so used to the idea of gases as a class of substances containing many different individuals, that it may seem strange to find that in the time of Hales (1677 to 1761) there were no gases; there was only air, and this was only vaguely recognized as a substance. It was supposed to be capable of almost infinite variation and modification. There was good air, bad air, mephitic air, inflammable air, etc., all held to be modifications of ordinary "elemental" air. Hales actually prepared, more or less mixed, gaseous hydrocarbons, carbon dioxide, hydrogen, sulphur dioxide, and probably chlorine; but his conclusion after a vast amount of experimentation is that "our atmosphere is a chaos," and he thinks that we may "adopt this now fixed, now volatile, Proteus among the chymical principles." Hales gave chemists the pneumatic trough, and now followed a rapid succession of brilliant experimenters with gases.

Dr. Joseph Black (1728-1799), professor of Chemistry in the University of Edinburgh, was the first of these. In nationality he illustrates the ubiquitous character of the Briton, who is never satisfied with belonging to one country. Black was born in France, his father was Scotch, but a native of Belfast. The historian of chemistry, Professor Thomas Thomson, who attended, in 1796-7, the last course of lectures delivered by Black, writes of him: "To engage the attention of the least informed of his pupils and to be perfectly understood by the most illiterate of his audience, Dr. Black considered as a sacred duty; he resolved, therefore, that plain doctrines taught in the plainest manner should henceforth employ his chief study." To Black we owe the idea of latent heat, but we are just now particularly concerned with his investigation of carbon dioxide, which he called "fixed air." He showed in 1755 that the differences between quick lime and limestone, between caustic alkalies and mild alkalies (carbonates) was due to the absence or presence in combination of an "air," which he called fixed air because it could be rendered "fixed" or solid by combination. He clearly distinguishes it as a substance different from the air of the atmosphere, and shows that the atmosphere contains a small quantity of it. Thus Hales' Chaos begins to become Order.

Black recognized that air has two main constituents, and suggested to his pupil, Rutherford, to examine the residue left after air has been used to support combustion and the fixed air absorbed from the resulting gases. Rutherford actually prepared nitrogen in this way and noted its inability to support combustion or life, but his thoughts were confused by the phlogiston figment, and nitrogen was registered by him as "phlogisticated air."

Dr. Joseph Priestley, a Baptist minister (1733-1804), a man of insatiable scientific curiosity and of great inventive genius, devoted himself to the study of gases, his attention being turned in that direction from the accident of his having a brewery next door to him. He spent his spare time in theological controversy, in preaching, teaching, and in the acquisition of Latin, Greek, Hebrew, Chaldee, Syriac and Arabic. Incidentally he wrote a very complete treatise on electricity, "The History and Present State of Electricity, with Original Experiments." It was published in 1767, when Priestley was 34 years old. He was then an LL.D. and an F.R.S. His theological controversies kept him in hot water, so that he was continually on the move. He at last tried the free atmosphere of America, where he was offered the chair of chemistry in the College of Philadelphia. This he declined, preferring to occupy himself with his investigations. He published many papers and pamphlets and died in 1804, active and orderly to the last, having read some proof sheets two hours before his death.

Thomson says of him: "No man ever entered upon any undertaking with less apparent means of success than Dr. Priestley did on the chemical investigation of air." He was almost unacquainted with chemistry; he had no apparatus, did not know the methods of making chemical experiments, and he had no money with which to make good these deficiencies. But in spite of all these adverse circumstances he discovered, or made known in the gaseous form, nitrogen dioxide, sulphur dioxide, silicon tetrafluoride, hydrochloric acid, ammonia, marsh gas, nitrogen monoxide, and carbon monoxide. His work on hydrogen and nitrogen made known more completely the properties of these gases, and he was the first to notice the fact that an acid was formed when electric sparks are passed through moist air.

But his most important contributions to science were (1) the discovery of oxygen in 1774 and (2) the rough analysis of air by the use of nitrogen dioxide. He called this measuring the "goodness" of the air (hence, eudiometer), the phlogiston theory preventing him from seeing that he was measuring the amount of oxygen which he himself had discovered. He made oxygen by heating mercuric oxide. He had so improved the appliances for experimenting with gases that he was able to measure volumes with some precision. But his work had not the exactness so marked in that of Cavendish. He used mercury as well as water for his pneumatic trough, and so was able to collect soluble gases like ammonia and hydrochloric acid.

The discovery of oxygen was made independently by Scheele in 1772, but he merely recorded the experiment in his note-book and did not publish until 1775. Priestley tested thoroughly the properties of the new kind of air, making for the first time the brilliant experiments on combustion now so familiar to us. He deduced its respirability from its reaction with nitrogen dioxide, and thereupon imprisoned a live mouse in a small quantity of it to see how long it would live. His conclusions from these experiments show the effects of the phlogiston theory. "Being now satisfied," he writes, "of the nature of this new species of air, viz., that being capable of taking more phlogiston from nitrous air, it therefore originally contains less of this principle, my next inquiry was, by what means it comes to be so pure, or, philosophically speaking, to be so much dephlogisticated." He made numerous experiments on nitrates and nitric acid, decomposing the latter into water, nitrogen tetroxide and oxygen. His conclusion is: "Atmospherical air consists of the nitrous acid and earth, with so much phlogiston as is necessary to its elasticity; and likewise so much more as is required to bring it from its state of perfect purity to the mean condition in which we find it." We see how completely the substitution of this negation, phlogiston, for positive oxygen blinded Priestley to the meaning of the discovery he had made. For in all these experiments "+ phlogiston" really meant "--oxygen," and conversely "--phlogiston" meant "+ oxygen." So that when Priestley writes "so much more phlogiston" in air, it is to be translated "so much less oxygen." So he naturally called his

new gas "dephlogisticated air."** He clung to the theory tenaciously throughout his life. His delight in controversy found full scope towards the end of the century, when phlogiston was being attacked on all sides.

While Priestley was carrying on his investigations another Englishman was doing important work in the same field, one of the oddest figures in the history of science, not even excepting that of Paracelsus. But the dignity of Henry Cavendish's life and his whole-hearted devotion to science, check the smile at his strange appearance and stranger habits. He was so rich that he didn't care to hear about it. On one occasion his banker approached him timidly with the information that his bank balance had accumulated to £70,000, and asked how he should dispose of it, whether he should put it out at interest. "You may put it out if you like," said Cavendish, and disappeared. He was a most ingenious and indefatigable experimenter, differing from Priestley in the logical consecutiveness of his work. He followed up a point with precision and tenacity of purpose until he had exhausted all the possibilities. His first investigation was a continuation of Black's and dealt with "fixed air" and "inflammable air." Cavendish, a phlogistonist, concluded that in the latter (hydrogen) he had probably found phlogiston itself nearly pure. Cavendish's work was characterized by astonishing exactness and thoroughness. Those parts of it of particular interest to chemists are: (1) Demonstration of the composition of water; (2) the exact analysis of air (his results have hardly been improved upon since), and (3) the combination of nitrogen, oxygen and water to form nitric acid. But when he expressed his results in terms of "phlogisticated air" (nitrogen), "dephlogisticated air" (oxygen), and "inflammable air" (hydrogen), the theory so obscured what he

*Priestley tried the effects of the new gas not only on mice but on himself. He writes: "My reader will not wonder that after ascertaining the superior goodness of dephlogisticated air by mice living in it and the other tests above mentioned, I should have the curiosity to taste it myself. I have gratified that curiosity by breathing it, drawing it through a glass syphon, and by this means I reduced a large jar full of it to the standard of common air. The feeling of it to my lungs was not sensibly different from that of common air, but I fancied that my breast felt peculiarly light and easy for some time afterwards. Who can tell but that in time this pure air may become a fashionable article in luxury? Hitherto only two mice and myself have had the privilege of breathing it."

had discovered that he did not see its meaning for chemistry. He adhered to the phlogiston theory till his death, which took place in 1810. He died alone, having sent away his man when he felt the end approaching. He left his fortune of £1,300,000 to his nephew, whom he used to see for ten minutes once a year.

Both Priestley and Cavendish experimented without the use of the balance. Had Cavendish in particular ascertained the weights of the substances he experimented with he must have exploded the phlogiston theory. He would have found everywhere a gain of weight where the theory indicated a loss, and *vice versa*.

Cavendish's work led to results important both to scientific and to industrial chemistry. His demonstration of the composition of water was turned by Lavoisier against the phlogiston theory with such effect as to hasten its downfall. Priestley had noted the formation of nitric acid when a mixture of hydrogen and oxygen was exploded. Cavendish followed this up and showed that it was due to the presence of a little nitrogen. He then converted a quantity of nitrogen into nitric acid by causing electric sparks to pass through air over water, oxygen being added until as much as possible of the gases had been thus converted. With all his care he was not able to get all to disappear. A small bubble always remained, "not more than 1-120 part of the original gas." This he recorded, but could not explain. A century afterwards Sir Wm. Ramsay and Lord Rayleigh re-investigated this and found it to be the new atmospheric element "argon," the first of a number of new elements found in the atmosphere. Nitric acid is now manufactured from air and water at Niagara Falls and in Norway by a large scale application of Cavendish's method. It can compete successfully with that made from sodium nitrate; and calcium nitrate, made by its action on lime, is even beginning to compete with the natural sodium nitrate as a fertilizer for the soil.

But the phlogiston theory is now in great danger. The keen, unbiased mind of Lavoisier (1743-1794) took note of its weakness. In 1772 he pointed out that sulphur and phosphorus gain weight when burned, in spite of the loss of the imaginary phlogiston. "This increase in weight," he writes, "is due to a great quantity of air, which becomes fixed during the combus-

tion. This led me to think that what is observed in the combustion of sulphur and phosphorus might likewise take place with respect to all the bodies which augment in weight by combustion and calcination; and I was persuaded that the gain of weight in calces of metals proceeded from this cause. Experiment fully confirmed my conjecture. I effected the reduction of litharge in closed vessels with Hales' apparatus, and I observed that at the moment of the passage of the calx into the metallic state, there was a disengagement of air in volume . . . at least a thousand times greater than that of the litharge employed." Soon after this, Priestley visiting Lavoisier in Paris told him of the new gas he had discovered. In 1775 he proved that "calx of tin" is a compound of tin and air by heating tin in a hermetically sealed retort, weighing the retort before and after the calcination, opening it and allowing air to rush in, and then weighing again. He found that (1) the retort and its contents did not change weight by the calcination, (2) that the weight was increased when the retort was opened, and (3) that the increase was equal to the weight gained by the tin on calcination. This experiment was simple enough and had often been imperfectly made before. What Lavoisier added to the work of a century earlier was the logical use of the balance. He in the meantime seized upon Priestley's discovery, repeated his experiment in such a way as to show that "red precipitate" (mercuric oxide) was formed when mercury was kept near its boiling point in a closed space of air, the air at the same time diminishing in bulk, and that this red substance, when collected and heated, gave off an amount of oxygen equal to the decrease in bulk suffered by the air. He thus proved that it is the oxygen in the air which causes the increase in weight.

One paper followed another in rapid succession. His time was short, and it almost seems as if he dimly foresaw the axe falling on that fatal 8th of May, 1794. He hurried to get his work done. His explanation of the nature of combustion became clearer and more generally applicable; but there was still an unexplained fact, the evolution of hydrogen when metals dissolve in acids and the conversion of the metals into "calces" (oxides), combined with the "acids," (sulphur trioxide, etc., were called acids). "Where does hydrogen come from if not from the metals?" asked the phlogistonists. And no answer was

forthcoming, not even from themselves. When Lavoisier, in 1783, learned of Cavendish's synthesis of water (not fully understood by Cavendish himself), he at once saw its bearing on this question. He repeated Cavendish's experiment on a large scale, and then followed it up by decomposing water by passing it through a porcelain tube filled with iron wire and heated to redness. He collected and tested the hydrogen, and noted the conversion of the iron into a "calx" (oxide). The explanation was complete. The hydrogen set free when metals dissolved in acids came from the water present. That ghost phlogiston was finally layed.

It is apparent that in much of his work Lavoisier assumed the law of conservation of mass. For example, in his account of the combustion of phosphorus, as given in his "Elements of Chemistry," he takes it for granted; and he states it clearly in the same book in connection with the discussions of vinous fermentation. There he also shows the use of the chemical equation.

Lavoisier's work infused new life into the subject. The study of combining proportions went on apace, but his own share in the work was rudely interrupted by the executioner's axe. He asked for permission to finish the research upon which he was working, but was refused. He had, however, laid the foundations of modern chemistry.

It is plain that Lavoisier considered compounds to have a definite composition. He made a fairly accurate analysis of carbon dioxide and also of the oxides of iron.*

The idea of the combining proportions by weight of the elements grew gradually at this period, and a number of chemists devoted themselves energetically to the analysis of compounds with the express object of determining the combining proportions.

It is of the utmost importance for clearness of thought to perceive the real significance of these numbers at this period occupying the time of chemists so largely. Their meaning is best expressed in what is known as the law of reciprocal proportions, viz., that the proportions in which the elements combine

* Proust, in his famous controversy with Berthollet (1802-1808), established the Law.

with a fixed quantity of any one of them are also the proportions in which they combine with each other or may be made so by multiplying by small whole numbers. This is the most important of chemical laws, and, in my experience as a teacher, the most difficult to grasp. I think, however, that the difficulty is due to an easily removable cause, to which I shall return later. It is this law which makes possible the selection of those definite fixed numbers called combining weights. There is a clear statement of it in an old text-book of chemistry, Turner's, of which Liebig was one of the editors, 1842. (Liebeg, by the way, did more for chemistry than to show how to make beef extract! He was the first chemist to teach the subject in the laboratory, and his name is inseparably associated with the progress of organic and agricultural chemistry.)

The multiples referred to in the statement of this law constitute the third law of combination, the law of multiple proportions. This law was also a gradual discovery, but the first clear statement of it we owe to John Dalton, to whom I shall refer later. Sir Humphrey Davy, the brilliant lecturer at the Royal Institution, London, of whom Coleridge said: "I go to Davy's lectures to increase my stock of metaphors,"—Davy gives a number of examples of this law in an appendix to his "Chemical Philosophy" (1812).* A number of the substances here set down were evidently accidental mixtures, and Davy does not, I am afraid, see clearly the significance of the numbers, as he speaks of the "theory of definite proportions," instead of the "law of multiple proportions."

The work of discovering the combining weights of the elements implied analytical operations which were greatly facilitated by Wollaston's discovery of how to work the new metal, platinum, into crucibles, and by Bunsen's invention of the smokeless burner called after him. I had the pleasure of working in Bunsen's laboratory in 1880, and of listening to a course

* For example :

"THE OXIDES OF GOLD."

	Metal.	Oxygene.	Metal.	Oxygene.
First	100	4.026	96.13	3.87 } 1
Second .....	..	12.077	89.225	10.775 } 3

Note that the first statement is the one which brings out the law. The second is a percentage statement merely. In teaching the Law it is better to use examples stated as Davy has done. This impresses the fact that the Law is true, independently of the numbers used.

of his lectures. He always in his lectures spoke of the Bunsen flame as the "nicht-leuchtende Flamme," the non-luminous flame. Although he enriched chemistry with a long line of discoveries and inventions extending over more than half a century, I never heard him refer to one of them as due to himself. He did not advertise. There was no need.

It is to Berzelius that we owe the first extensive table of combining weights. His analyses, made during the first quarter of the nineteenth century, are in such marked contrast with the crude methods and results of the last quarter of the preceding century that it is almost incredible that so much advance could have been made. But Berzelius, like all the chemists of his time, found a difficulty in selecting the numbers. This difficulty was due to the multiple proportions. Which of the multiples should be taken, *e.g.*, 8 or 16, for oxygen? Berzelius found no satisfactory answer to this question, except the principles of convenience and simplicity for the formulas which Berzelius himself devised* to indicate the composition of compounds. But different chemists had different ideas as to convenience and simplicity, and so it came about that some chemists chose 8 and some 16, and so on, for the combining weight of oxygen; thus arose great confusion in formulas. What was needed was some general method or methods of choosing. This was gradually worked out from the properties of gases in relation to their combining weights.

In 1805-9, Gay Lussac made a discovery which finally solved this problem. He first showed that the combining volumes of hydrogen and oxygen in water are as 2:1. Later he found similar simple relations in the combining volumes of ammonia and hydrochloric acid, of ammonia and carbon dioxide, of ammonia and boron fluoride, and of nitrogen and oxygen in three of the oxides of nitrogen. In several of these cases he indicated examples of the law of multiple proportions. The results flowing from Gay Lussac's discovery are of the utmost importance. When the resulting compound is a gas formed from gaseous elements it follows (1) that the weights of the

* Dalton criticised Berzelius' substitution of letters for his own geometrical symbols, as follows :

“ Berzelius' symbols are horrifying ; a young student in Chemistry might as soon learn Hebrew as make himself acquainted with them.”

volumes combining are very simply related to the combining weights of the elements, and (2) that the sum of the weights of the combining volumes may be taken for the "formula weight" of the resulting compound. Taking a convenient standard for the formula weights of compounds, it would then be easy to select the combining weights of the elements so as to give the greatest amount of simplicity and convenience to the formulas of compounds.

A

Gases and Vapours.	Specific Gravities Hydrogen as 1.	Chemical Equivalents.	
		By Volume.	By Weight.
Hydrogen.....	1·00	100	1·00
Nitrogen	14·12	100	14·15
Chlorine	35·84	100	35·42
Iodine	126·30	100	126·30
Bromine	78·40	100	78·40
Water	9·00	100	9·00
Alcohol.....	23·24	100	23·25
Sulphuric Ether, etc.	37·50	100	37·50
Binoxide of Nitrogen	15·06	200	30·15
Mercury	101·00	200	202·00
Ammonia	8·56	200	17·15
Hydrochloric Acid	18·42	200	36·42
Hydriodic Acid	63·63	200	127·26
Hydrobromic Acid, etc.	39·71	200	79·40
Oxygen	16·00	50	8·00
Arsenious Acid	198·40	50	99·40
Phosphorus	62·80	25	15·70
Arsenic	150·80	25	37·70
Sulphur	96·48	16·66	16·10
Bisulphuret of Mercury	78·10	33·33	234·18

In the hands of Ampère, Avogadro, Gerhardt, Laurent and Cannizzaro, this idea was gradually worked out, but the process took nearly half a century. In 1842 it had taken the shape illustrated by these tables in Turner's "Chemistry," in which the weights of equal volumes, *i.e.*, the specific gravities, of a large number of gases, elements and compounds, are compared with their "chemical equivalents." This term is used in the same sense as I have used "combining weights" for elements and "formula weights" for compounds. The compounds cited can be divided into several classes: (1) Those for which (like water) the formula weights (equivalents) are the same as the weights of equal volumes (specific weights, hydrogen = 1); (2) those in which (like hydrochloric acid) the latter are double the former;

(3) those in which it is half, etc. As the formula is used to express the composition of the compound, it will not do this less correctly if it is doubled, halved, etc. Thus was suggested the idea (which we owe mostly to Gerhardt and Laurent) of constructing formulas of all gases so as to represent equal volumes in the gaseous state.

Let us now see how this principle has been used in choosing combining weights of elements and in establishing formulas for gases. The first step is the analysis of compounds of hydrogen and oxygen. We get the proportions 1:8 and 1:16 respectively for the two known compounds. Which number shall we take for oxygen. Try, provisionally, 8. Then HO and HO₂. Now analyze hydrochloric acid. Result, 1:35.2. Only compound known, ∴ HCl.

Now, test these formulas by the principle of volumes. Try the volume of 1 gramme of hydrogen as the standard volume. At NTP it = 11.2 litres. This is also the volume of 9 grammes (HO = 9) of water calculated as a gas NTP. But the volume of HCl = 36.2 grammes = 22.4 litres. Hence, we must either halve HCl, which would be awkward, or double HO. The latter course involves making the volume of 2 grammes of hydrogen the standard.

Apply to nitrogen oxides. From analysis of the monoxide.

$$\begin{aligned} O &= 8, N = 14. \therefore NO \text{ or } N_2O_2. \\ N_2O_2 &= 44g = 22.4 \text{ litres.} \\ N_2O_4 &= 30g = 22.4 " \\ N_2O_6 &= 76g = 22.4 " \\ N_2O_8 &= 92g = 22.4 " \\ N_2O_{10} &= 108g = 22.4 " \end{aligned}$$

Apply to carbon oxides. From analysis of the monoxide C = 6, O = 8.

$$\begin{aligned} C_2O_2 &= 30g = 22.4 \text{ litres.} \\ C_2O_4 &= 44g = 22.4 \text{ litres.} \end{aligned}$$

It is seen that the multiples of O are always even and hence divisible by 2. This turns out to be the case with all volatile or gaseous oxygen compounds. Hence simplicity demands that the value of O should be doubled. Similarly for C. O = 16. C = 12.* (It may surprise some when it is stated that this is

* And the formulas become

$$\begin{aligned} N_2O &= 44g = 22.4 \text{ litres} \\ NO &= 30g = 22.4 " \\ N_2O_2 &= 76g = 22.4 " \\ N_2O_4 &= 92g = 22.4 " \\ N_2O_6 &= 108g = 22.4 " \\ CO &= 30g = 22.4 " \\ CO_2 &= 44g = 22.4 " \end{aligned}$$

substantially the history of the combining weights of oxygen and carbon.)

Since the specific weight of hydrogen is 1, and since 2 of hydrogen is the standard of formula weights of gases, it follows from the definition of specific weight that the formula weights of all gases are twice their specific weights.

I am sure that some of you are wondering where the atomic theory comes in. It is not necessary for it to come in at all, but it may be a great convenience. As a teacher I would bring it in at the end of a course which covered the ground I have just gone over, but naturally after many details had been used as illustrative material. Theories are useful as symbols to help us think. Dalton's atomic hypothesis was really only a brilliant theoretical statement of the law of reciprocal proportions, and much mischief has been done in the teaching of chemistry by putting it in the place of that law. It may be urged that introducing the theory here makes the teaching of the subject easier. True enough, but at the expense which avoiding a hard task always brings, viz., a final loss. Van t'Hoff records the fact that he never really understood chemical laws and theories until he had been some time a professor. My humble experience has been the same. I did not understand chemical laws until I had carefully examined them apart from the atomic theory. A theory should not be brought in until the facts it symbolically explains are well before the mind.

But the study of earth, air, fire and water has gone on apace. In 1823 Faraday showed us how to liquefy gases by pressure. His simple laboratory appliances have developed into the elaborate machines of Wroblewsky, Olzewski, Dewar, Hampson and Linde, by means of which air, oxygen, nitrogen, hydrogen, etc., have been liquefied in large quantities and even solidified by rapid evaporation of the liquids.

Faraday also led the way to the cheap electrical current by showing how to transform the energy of a moving body into electricity. Thus cheap electrolysis became possible. This may seem to have little connection with our subject, but it has lately led to the cheap manufacture of the metal calcium on the large scale, and now ammonia can be made from the nitrogen of the atmosphere by alternately leading nitrogen and hydrogen over

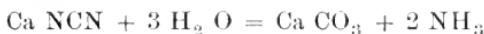
calcium turnings heated to 500 degrees in clay tubes. The atmosphere thus becomes the source of ammonia for all time, just as we have seen Cavendish's simple experiment develop into a method for making it the source of nitric acid.

In another direction the study of electricity has led to important modern developments of what one may call "fire and air" industries.

In 1862 Wöhler showed how to make calcium carbide by heating a calcium-zinc alloy with carbon. In 1896 Moissan made calcium carbide in the electrical furnace by heating lime with charcoal. Later Willson made this process commercial. Now Adolph Frank passes the nitrogen of the atmosphere over heated calcium carbide and gets calcium cyanamide:



This compound is converted by high pressure steam into calcium carbonate and ammonia:



Thus in another way the atmosphere is drawn upon to make this valuable compound, ammonia. Calcium cyanamide slowly gives off ammonia when mixed with moist earth. It is thus available for use as a fertilizer, and in this way we get back to earth!

Moissan's electrical furnace work has been extremely brilliant. The volatilization of lime, carbon and silica has been demonstrated. He has also achieved the manufacture of real diamonds from charcoal by sudden cooling of iron charged with carbon and heated to the intense heat of the electrical furnace. He tells with what fear and trembling he first plunged the white hot crucible into the cold water. But it cooled without explosion. He varied the procedure by using a furnace which allows the hot metal to drop into a bath of mercury placed beneath. The spheres of iron obtained in this way yielded small diamonds when dissolved away by acids.

In conclusion permit me to say a few words about the study of chemistry as a means of education. It is often pointed out that it, in common with other sciences, ranks below Latin, Greek, etc., in this respect. It cannot be denied that there is some truth in the charge; but the inferiority is due, I am con-

vinced, not to the subject, but to the way in which it is taught. Were the same time and pains given to the training of the teacher and to the methods of teaching chemistry as are given to, say, Latin, it would be found that chemistry would yield at least equally good educational results. In this connection it is plain that every teacher should be acquainted with the history of his subject, for it is in the study of the historical development that we get our clearest insight into the difficulties. We see these difficulties as they were met and overcome in the childhood and youth of the subject. I would recommend teachers of chemistry to read Freund's "Study of Chemical Composition," Smith and Hall's "Teaching of Chemistry and Physics" (Longmans, Green & Co.), and Schloch's "Introductory Chemistry" (D. C. Heath & Co.).

SOME ASPECTS OF THE STUDY OF BIOLOGY.

J. B. TURNER, B.A., HAMILTON.

So much has been said and so many books and magazine articles have been written on the study of biology, that an apology would appear to be almost necessary for selecting such a subject upon which to address you on this occasion. More especially would an apology seem necessary when I am addressing an association each of whose members has, no doubt, well-defined views both as to the matter and the method of the study. Notwithstanding all this, I venture to hope that, if I am not able to lay before you any new ideas, I may at least succeed in placing some of the old ones in a new light so that they may take on an added freshness and thus help to impart new life to our work in conducting the study in our schools of the delightful subject of biology.

Allow me at once to free your minds from the apprehension that I propose to take up your valuable time with one more attempt to give expression to any personal views I may have as to the position biology occupies in the curriculum of our schools and colleges. In the past too much of the time of our Association meetings has been taken up with discussions of this kind, very largely profitless and too often acrimonious. Instead, I shall attempt as far as time will permit me to point out some of the results that have been achieved and the methods that have been employed from time to time in this study. This method of dealing with the subject may not have so direct a bearing on the work of our schools as some others might, but it may be made none the less interesting on that account.

Two results may reasonably be claimed for the study of biology, either one of which would justify its continuance as a subject of study, not by the specialist only, but also by the man who wishes to be considered as being educated in the best sense of that much abused term. These results may be briefly stated as follows: First, the influence its study has exerted upon educational methods, and second, the important advances that have been made in the sum total of knowledge as the result of the

study of biology, together with the applications that have been made of these results for the benefit of the world at large, some knowledge of which should be possessed by every person.

Time will not permit me, nor do I think the occasion a suitable one, upon which to deal with the useful applications that have been made of the results attained by the study of biology. I shall, therefore, confine my attention to the achievements and methods of the study of biology in an educational sense.

What, then, has the study of biology done for the cause of education? What has it contributed to the improvement of method in our teaching? Has its study done anything to point the way to better things, educationally speaking? A very little consideration will inevitably force one to the conclusion that each of these questions when fully answered would assure for biology a very high place for all time to come in any scheme of studies, whatever the grade of the school or college for which the course is being prepared.

I think it will be admitted without controversy that the methods of study here are to all intents and purposes the same as in the physical sciences. The results are reached in much the same way. The great achievement in the past of the sciences in the realm of education was the introduction of the laboratory method which, primarily, means the bringing of the learner into intimate personal contact with the object of study. It is unnecessary for me to impress upon you, as science teachers, the great importance, the absolute necessity, of this personal contact if successful work is to be done.

Let us turn for a moment to a consideration of what the laboratory method has done for education. Prof. Coulter in an admirable address on "The Mission of Science in Education," says it (the laboratory method) has revolutionized educational methods. This statement seems at first to be an exaggeration, but a closer examination of the whole subject of educational methods will lead one to the conclusion that it is but the mere truth. One does not require to go very far back in the history of educational methods to find arithmetic taught from rule in a dogmatic way. How different from what it is now when everything is done by the conscientious teacher to bring before his pupils concrete examples upon which their number or geometrical work is based. In the study of languages the same changes

have come about as the result of the laboratory method. In English literature, for example, it was, only a very short time ago, considered the proper thing to do to begin with a study of some recognized text on the history of literature. Now the works of the author are placed in the hands of the student, and he is required to study these in the same way as the man of science does his biological specimen. If, however, the study of biology has completed its task when it has done its share in bringing into the field of educational effort so valuable a method as this one is, and the laboratory method having been firmly established, then some other reason, from the standpoint of its educational value, must be found for continuing the study of biology in our schools. It is claimed for biology that the study of it is specially valuable in training the power of observation, and it is, no doubt, very valuable for that purpose, but is not indispensable. There are several subjects, such as drawing, writing, language study, as well as others, which make large demands upon the student in the way of observing accurately and extensively. That being the case, the only claim in this direction that can be put forward on behalf of biology is that it calls for observation in a very important field of endeavor. Again, the study of biology calls for a very extensive exercise of the powers of analysis, but the same may be said of the other subjects, so that while we like to believe that our particular subject gives excellent opportunities for the cultivation of this very important function of the mind, yet we are compelled to admit, it may be with great reluctance, that there are other subjects, such as literature and language study, generally, of which the same may be said. What I have said as to observation and analysis may with equal force be said of synthesis.

What, then, is the special function of the study of biology in educational work and method? Or, rather, has biology any special function in educational work, and if so what is this function? The function of the study of biology is not so much that it gives exclusively any particular mental training, but it is rather the attitude of mind which it demands of its students. This attitude of mind can be best made clear by contrasting and comparing the attitude of the student of biology, on the one hand, and the student of literature on the other. The student of literature strives to arrive at an appreciation of the book or

selection he is studying. His aim is to understand the thought, to enter into the sentiments expressed by the author. In order to thoroughly do this he must place himself as nearly as he can in the position of the writer; in a word, his attitude towards the selection which he is studying must be one of self-injection, and in proportion as he assumes this attitude will he come to an enjoyment and appreciation of the author he is studying.

The student of biology, on the other hand, in order to arrive at his goal must assume an entirely different attitude. His object is to eventually arrive at a general principle, a formula, a law, or whatever you choose to call it. To do this he must come to his work with a mind unbiased, unclouded, free from prejudice and fully determined to follow in whatever course the established facts direct until the desired goal is reached. There is implied in this, if not already stated, that the worker must eliminate himself as a factor. He must be prepared to lay aside conclusions whenever additional investigations make these conclusions unwarranted. He must set aside his personal feelings and sentiments, for if he allows these to influence him there will be a personal factor in his results that will very seriously interfere with their value for the universal mind. This attitude of rigid elimination is the only possible one for the serious student of biology, and the cultivation of this attitude is the special function, educationally speaking, of the study of the subject we are discussing. If the view I have expressed with regard to the special attitude of the literary student is the correct one, then the person who confines himself to such studies alone will, in the course of time, come to be governed and controlled by his emotions. His judgments will be subject to his feelings, and consequently he will be a man of moods whose opinions are very largely the expression of the particular humor he may be in at the moment. It is scarcely necessary to say that judgments formed under such circumstances will scarcely command the respect of the man of thought and action.

On the other hand, the person who confines himself to the study of biology will become a man of a cold, calculating turn of mind, one who must know the reason for each step he takes, one who by a repression of his emotions has very largely lost the power to feel—his sympathies have become atrophied. So that, while he has acquired the power of making careful estimates of

circumstances presented to him he loses much of the enjoyment of life by lack of ability to appreciate those things that are beautiful and good that lie outside of his particular field of work. You will thus see that neither a purely literary training, nor yet a purely scientific one, will give the best results.

The object of education is to train and expand all those faculties with which every child is to a greater or less extent naturally endowed, and at the same time to fit him for the fullest realization of all their latent possibilities and so make possible a true enjoyment of his life. If this object of education were kept in mind, and also the fact that there is something of good in every subject, we would hear less of those controversies which have too often appeared in the discussions of educational questions, controversies of so heated a character and very often so unfair to an opponent as to be discreditable alike to the student of the humanities on the one hand and the student of the sciences on the other. A truer estimate will be that the study of both is necessary to make a well-rounded and evenly balanced mind, and after all that is what is most worth having.

It may be said that all this applies to any and all of the sciences, and so it does. But because it does so is no reason why we should neglect to mention these things in connection with any particular science. There is still another educational factor which must be taken into account in determining whether a specified subject shall be studied or not, and that is interest. It goes without saying that the child will undertake much more readily a piece of work in which he is interested and accomplish more than he will if he is asked to work at something in which he feels no special interest and about which he is quite indifferent. It needs no argument to convince those who have watched the growth and development of a child that there is nothing that is so attractive to him as the living, moving object. In such he has a very personal interest because he is himself alive.

Up to this point I have been discussing the mission of the study of biology and what it has accomplished in the educational world. Let us now turn to a brief consideration of how this study has accomplished its mission and what have been at different times the methods of its students.

When biology as a subject is mentioned there at once comes into the mind the thought that this subject is of a very recent

date, but this is scarcely a correct view to take. Some attention was given by the ancients to this study, although not under this name. Aristotle, among the Greeks, gave the world a voluminous work on the history of animals, and at a considerably later date Pliny, among the Romans, contributed also an extensive work known as the "Natural History of Animals." Both of these works were, to a very considerable extent, based upon careful observations made by the authors themselves. But the objection that would be raised to them by the modern student of biology is that there runs through them a thread of speculation that had little or no basis of fact, but came rather as a result of the natural fondness of the authors for theorizing. Notwithstanding this defect these were wonderful contributions to the subject considering the conditions with which the writers were surrounded. Theophrastus, a pupil of Aristotle, wrote a history of plants, as did also Dioscorides at a later date. For centuries after the time of the latest of these names little or nothing is recorded of the progress of the study of biology. Learning through all these centuries was dominated by authority. Dogma was in the ascendant, and in an atmosphere such as this it is impossible that science of any kind, and particularly the science of life should make appreciable progress. Some time in the seventeenth century there appeared a few workers who had come slowly to learn the value of observation as a basis of all thought on the natural world surrounding them, and from that time forward until the present that particular aspect of biological study has occupied a prominent place in the method of every distinguished name in the science of biology.

Every observer has not attached the same value to his observations, nor has everyone made the same use of his observations. Some began their work with an hypothesis, and then they proceeded to make observations to fit into the hypothesis. Such observations are not without bias, and to that extent they are untrustworthy. Other workers began with trustworthy observations and continued them until they imagined they had reached a point where they could enunciate a general principle, and from their so-called general principle they proceeded to speculate in a way that is amusing if somewhat unreliable. A third class of observers, but of a more recent date, eventually came into the field. These began in the same way as the second class

I have mentioned by making a number of observations and then from these enunciated a general principle. Then came the departure in their method. Instead of going on to speculate from this principle they made additional observations to test their principle, and whenever their observations failed to confirm their supposed principle they discarded or modified it in such a way as to bring it into conformity with nature as they observed it. One name immediately comes to mind in connection with this method, that of Charles Darwin. For twenty years he labored along these lines, and at the end of that time he gave to the world a book which did more to influence the thought of the last century than probably any other book that was written during that wonderful period of advancement. The principle worked out by him holds, to this day a prominent place in discussions of the science of life. The object aimed at by the observers in the field of biology was not always the same. In the earlier days the object of many of the workers seemed to be to set up some new system of classification or to justify some old one. We hence find the collector of specimens, whether of plants or animals, occupying a prominent place. Little attention was paid by these so-called naturalists to anything that did not assist them in naming and labelling their specimens. They scarcely gave a thought to the life processes in their plant or animal. It possessed greater interest for them when it was dead and the proper tag attached to it than it did when alive. They did a useful work, but their results would have been infinitely more valuable had they added to their work the task of studying the life and habits of the living being. We are by no means free from their influence yet. One evidence of it is seen in the emphasis that is being laid on the necessity of having a museum in each of our schools. I have no quarrel with the idea of a museum provided it is properly carried out. If it is made an end in itself then our schools would be better without it, but as a means to an end it will be very useful. Succeeding these observations, which were for the most part made upon the external features of the object of study and, of course, without dissection of the specimens, came the observations and work in the biological laboratory. At first this was of a very simple nature, requiring only a very slight equipment, but as the work progressed necessity soon arose for improved appliances. Hence

arose the use of the microscope. For a time the laboratory work followed no very definite plan. It appears almost as if whatever was most convenient or most accessible was taken for the purpose of study, and at the same time attention was directed more and more to the internal structure and minute anatomy of the specimens under study. This particular kind of work was greatly improved and systematized by what has been known as the Type Method. Agassiz, the great Swiss-American, is probably the student and teacher of biology who was the first to adopt this method, but the prominent place it has secured and holds to-day is to a very considerable extent due to that admirable teacher of the subject, Prof. Huxley. The advantages of the type method are obvious, and yet a too close adherence to this method will fail to give the best results. The great advantage is that the student who conscientiously does the work of this method acquires habits of work and obtains a thoroughness of knowledge of a few specimens that will be of great value to him, but at the same time a rigid adherence to the study of types will give only a very limited range of knowledge.

As the type method came more and more into use one very injurious result followed in its train. The student became so absorbed in his laboratory work that by degrees his field work came to be neglected. To such an extent did this become true that the animal or plant came to be a specimen to be studied only after it had been successfully chloroformed. As a living organism, endowed with many of the capacities and faculties of the student himself, it did not appeal to him. As something that must be studied in its natural environment as part of one great whole it was scarcely thought of. From the outset some of these defects of the method were recognized, but their importance was not sufficiently appreciated. Time and experience, however, made it plain that in order to attain the most desirable results the type method must be supplemented by a study of the conditions suitable, not merely to life generally, but a particular study of all the conditions which would give the best results for each individual organism. As a result of this new faith the biological student of the present day studies first the specimen in its natural surroundings in order to learn its habits and the peculiarities of its manner of life. Such an initial study will obviously put the student in a position to better appreciate the

structure and form of his specimen when he has to study it in the laboratory, where the type method still retains its ascendancy. Another consequence that has arisen from this sort of field work is the application of it to the work of even the youngest child in our kindergartens. The value of this aspect of it can scarcely be overestimated. This method of introducing the child to the study of biology has the very decided advantage of taking the child just at the age when he is most easily interested in the natural world around him. The knowledge he acquires at this early age is a sure foundation upon which to build the superstructure to be reared in the years to come; the experience he gets, and the ability to continue the work on his own account whenever opportunity offers, will do much to enable the man or woman who is the fortunate possessor of these to enjoy the spare moments of a busy life.

The immediate educational problem so far as biology is concerned is to have the work of these early years properly done. It is loaded with an unfortunate name—Nature Study. It is suffering at the hands of inexperienced and shall I say unqualified teachers, who have failed to catch the spirit of the subject on account of their own want of training, not from a lack of desire to do their duty as teachers. Time alone can remove this disability under which the subject labors. It rests with us as individuals and as an Association to do our utmost to have this disability removed in as short a time as possible so that the child of the near future will be introduced in a proper way and at the right time to a study of such educative value and practical work as the delightful subject of biology is.

DISCUSSION ON TEACHING OF ELEMENTARY SCIENCE.

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This opportunity of taking part in the discussion of the teaching of elementary science, or more particularly nature study, has, no doubt, been looked forward to, with the expectation of some help and benefit, by many of the science teachers who have to teach junior science in our High Schools and Collegiate Institutes. From its recent introduction, in its present form, into our High School curriculum, and from the consequent unreadiness on the part of most teachers, and lack of accommodation on the part of the school, a discussion on this subject becomes almost necessary in order that ideas may be interchanged, methods discussed and difficulties cleared; and right here may I say that the object of this conference is not that the points in this paper merely may be discussed, but that each and every teacher concerned should contribute from his experience and reading any ideas and methods which may be of help to others. This is the main object of the conference, the idea of which was suggested to me and to our worthy secretary by some discussions which took place amongst certain associate examiners of the Education Department, many of whom, no doubt, are here ready to take part. The reason I have been chosen to open the discussion is no doubt due to the convenience of my having specimens and apparatus to illustrate the practical work done. I shall proceed at once to my subject, and I trust I shall be pardoned for making so many necessary references to myself.

For the sake of clearness and in order to make the discussion more particular, we shall consider the following points: (1) Material, what, when and where collected, and the "making of collections"; (2) methods of teaching and studying in and out of class; (3) books, reference and note books, apparatus, etc.; (4) the curriculum, and (5) the teacher.

The consideration of the material is, no doubt, in the minds of many teachers, the most necessary, from the fact that it is probably the first thing to be decided upon. We know that some

teachers imagine if they could only get material they would have no difficulty in teaching. To my mind, however, this is not the most important part of the work. Nature supplies us with by far more material than we can possibly ever hope to study thoroughly in the time at our disposal, and I find more difficulty in picking out the wheat from the chaff than in getting a heap of stuff in which there is very little mental food. This year we had on hand for class study more material than could be carefully examined, and most of this material, too, was secured and brought in by the pupils or collected during class excursions on Saturdays, as I find that pupils work more enthusiastically, both in and out of class, with the co-operation of the teacher than without. It may be that it is easier to get pupils in larger places to collect specimens than is the case with pupils in smaller places. I would not like to say, but I do know that pupils take a greater interest in collecting when they know what to collect, where to collect, and if they are supplied with proper outfits for collecting, and above all, if they can see some visible results of their work. We have tried to have the making of collections a means to an end, nothing more. First of all we secured suitable places for keeping and exhibiting specimens, in the form of wall cases for insects, birds, etc., herbarium shelves for plants, and cupboards for life history and other specimens, for without these the making of collections is next to impossible and useless. The pupils were then set to work, after proper instructions had been given and the required material and apparatus obtained. Each pupil was asked to make a small botanical collection and a small entomological collection, which were counted as part of the pupil's term work. These collections were then used partly for the general collection of the school and partly as a source of material for class study. The greater part, however, of the class material was obtained by asking, some time beforehand, some half dozen or more of the members of a class to have specimens on a certain day, but always making sure to name one or two of the more enthusiastic pupils, and to tell them where to find the necessary material. This information was in many cases obtained from some of the class, for it is really surprising how much even city pupils know about nature. In case this failed, there was still the last resort, which should never fail, the teacher. At a time when living

specimens from without were not obtainable, there was always an abundant reserve in the pupils' collection of insects, fruits, etc.

2. As to the teaching of elementary science. In my mind the method is very clear in theory, but in practice very uncertain. In theory two methods, of a distinct nature, are recognized; the first, and older, "on the part of the pupil passive and on the part of the teacher demonstrative; the other, on the part of the pupil active, and on the part of the teacher suggestive." The latter appears to me to be the more natural and sensible. I like the idea of pupils working and the teacher directing and suggesting. It saves the teacher during school hours, enables him to put more thought on the work of the pupil, and gives him a chance to apply and improve his powers of discipline, if he has any. Besides, the average pupil likes to be and will be active, as a great many of us know, perhaps to our sorrow, and it seems the wise plan to steer his energies into the right channels of activity instead of giving him an opportunity to misdirect them, which almost invariably happens when the teacher does all the work. In practice, this plan is certainly not always possible. The best results are undoubtedly obtained by the teacher working with the pupils, not merely directing them. It is not to be expected that junior pupils know a great deal about nature's methods, no matter what they may know about facts, therefore a good deal of showing is necessary. The object of science teaching should not be so much the teaching of facts as to give the pupils power to know how to learn facts. In the fall, in studying and making collections of insects, after the object had been explained and the pupils provided with a sufficient number of suitable boxes, insect nets, killing bottles, etc., the members of a class were asked to prepare for an excursion on a particular Saturday, and needless to say, although not all the members of the class were present, there was always a sufficient number to look after, in city limits, at least. And furthermore, I found that a second invitation to them was not necessary; I was the one to receive the invitation, and not many Saturdays, during suitable weather, passed without similar excursions, two, sometimes, being undertaken on the same day, one in the forenoon and one in the afternoon with a different class. Of course it was always decided beforehand where to go and what to look for.

The method of study on these occasions was made as natural as possible. In addition to particular specimens for class study, each pupil secured specimens for his or her own collection as well, and at the same time an attempt was made to learn something about the habits of the individual insect or plant, its food, protective surroundings, ecology, plant societies, etc. During these excursions, also, living specimens of insects were collected in small vials with perforated corks, for the purposes of class study. To my mind this is the only natural way to study nature, either in class or out, that is, from living specimens as they are observed in nature.

3. Notwithstanding the necessity of studying nature from nature herself, in which it is apparently implied that the use of books is unnecessary, still it does not follow that books must not be used. Books are not to be used as the source and only source of knowledge. And it is just here, I fear, that many mistakes are made at first, as it was in my own case. In outlining a plan or course of study the first thought, perhaps, in starting to teach the subject is to resort to some book on nature study, and this is not so very wrong, but when the teacher adopts this outline, and tries to make it his own, then comes his trouble, whether through lack of the same kind of material or proper conception of the method used, I do not know. But this I do know, that it was not until I determined my own course, from the material and environment, and from the necessities and interests of the pupils, that I found I was able to awaken a proper interest in the subject. In fact it was not until I became a learner myself that I was able to understand the needs of those I had to teach.

And so, in my mind, although books should not be adopted as the only means of information and method, they should not be put aside altogether. It is quite right and necessary that we should use books, and the best books on the subject, the more the better. We should compare our observations and discoveries with those of others, and build on the foundations which others have laid. But we should not substitute the information and ideas gained from books for our own obtained by observation and experiment from nature. Let me illustrate. Instead of asking the pupils to read an account of the metamorphoses of butterflies and moths, or explaining or illustrating the same by

specimens or lantern slides, I tried the plan of asking each pupil, out of a total of about 175, to collect in small boxes, separately, one or two specimens of each of six different kinds of caterpillars, and to keep in a suitable book a careful record of details of dates, places, appearance, changes, etc. It was too late when we started to look for egg masses, except in a few cases, and besides, to my mind, this would have been too difficult a problem for the majority to undertake alone. The results in this case were far from unsatisfactory. Some of the pupils, as is usual, obtained no specimens. The majority had the required number, and many had a dozen or more different specimens. Later on, when the metamorphoses were beginning to take place, I was compelled to limit the time in the class for asking questions concerning these, they became so numerous. I recall the query of one of the girls, who explained that she had put one small caterpillar into a box, and the next day had found apparently two, one a little larger but of the same color, the other only a soft, wilted body. It is hardly necessary to say that that pupil at least knew more about the moulting of caterpillars than if the same information had been obtained in some other way. Furthermore, this material supplied the pupils with a good many perfect specimens for their collections.

Following up these observations on this and on other similar lines, it seems to me that the reading of suitable books by the pupils will be more interesting and beneficial. It is hardly necessary to give a list of these books, as they are no doubt familiar to the teachers. Those I have found most helpful, however, are among the following books of the Nature Study Library: Diekerson's "Butterflies and Moths," Lange's "Nature Study and Life," Coulter's "Plants," Ganong's "Teaching Botanist," and also "Plant Physiology," Muldrew's "Sylvan Ontario," Clute's "Ferns in Their Haunts," Chapman and Reed's "Color Key to North American Birds," McIlwraith's "Birds of Ontario," and many others.

There is one book, however, that is important enough to require special mention, the pupil's note book. A good deal of thought should be put on this by the teacher, for we are all agreed, I think, that too much systematic work, neatness and good English cannot be secured. The pupils should have uniform note books, strong, convenient in size, and suitable for

writing with ink. In these should be kept as far as possible an accurate record of all class work and results of individual work done outside, and these notes should be arranged so that the books may be afterwards used by the pupils in the nature of text-books. For this purpose I find that the note-book sold by the Chas. Chapman Co., of London, is very suitable, and it contains, besides, a few useful hints on collecting.

I have not much to say as to apparatus. That may be better illustrated than talked about; suffice it to say that for outdoor study pupils ought to have suitable outfits, insect nets, killing bottles, boxes and drying boards, and there must also be proper jars and receptacles for keeping specimens. For class study, on the other hand, except for the study of elementary physics, and about this I intend to say very little, apparatus is almost unnecessary. A good pencil, a sharp knife, and a good lens, associated with sharp eyes and a steady hand, are all that is required.

4. As regards the outline of work and instructions laid down in the curriculum, I have very little thought. It is generally understood that the course is not to be followed out in every detail. A good deal of latitude is no doubt necessary, and there are perhaps some important aspects of elementary science not mentioned. The idea, I believe, besides that of having some uniformity, is to give the teachers, especially those not already familiar with the work, a general outline, so that they may judge of the scope of the course.

There is one thing in particular, however, that I might mention in this connection, that is, the study of winter botany and perhaps winter zoology too. It would probably have to do away with the study of physics in the first forms of the lower school, but that might not be a very great mistake after all. Does it not seem somewhat unnatural to drop altogether the study of nature in the fall and winter? What nature does in winter ought to be as important, though perhaps not as interesting or as easy to investigate, as what she does at any other season. For example, should not the study of the life of a tree or plant include, say, its fruit and seeds in the fall, its appearance, buds and branching during winter, and the bursting of buds and re-appearance of leaves, flowers and seeds in spring and summer? Perhaps we may have some opinions on this.

Last of all, we come to by no means the least important consideration in the discussion, the teacher. For no matter what material, or apparatus, or books he may have at his disposal, if he fails in his duty to guide properly, there is little chance of good results. It is the teacher who is also the student, who is in sympathey with nature, and has a desire to know more about her, that is capable of discovering facts and leading others to do so. I find that my pupils work better when I work. If they understand that I wish to know something and want them to help me, the results are far more satisfactory than if they think I am merely asking them to do something for the sake of making them work. To be thoroughly familiar with all aspects of nature does not constitute a successful teacher, though in itself this is a very valuable asset. It is more important, it seems to me, that he should be capable of leading and interesting his pupils in some problem, the mastering of which will give both to him and them, besides information, additional power to solve other problems. For it is in being able to understand nature that man may gain control of the forces of nature, and hence have that dominion over the beasts of the field which it was intended he should have. Such an ideal as this is but a natural one, and surely not too high for any teacher to place before his pupils.

Let me briefly, in conclusion, say that I trust these remarks, though directly perhaps of little value, may bring out through discussion some thoughts which may throw light on some difficulty or give some teacher fresh ideas, that he may feel that the time spent has not been entirely wasted. I have merely tried in a general way, with a few particular examples from my own teaching, to give what I thought might possibly be of some benefit to some one, and I hope that there are others prepared to add to what has been already said.

EDUCATIONAL VALUES.

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In matters educational as well as social and economic, we are living in a period of transition. Not in this country only, but among all civilized peoples, questions of education are receiving the careful attention of the best minds. Among all the questions of the day, perhaps the most important is that of educational values. What shall we teach our children? Shall we make the school and the college, as they were in the days of our grandfathers, and for generations before, and are yet to a large extent, places in which the chief stress is laid on mathematics and foreign languages as a means to education, or shall we go to the opposite extreme, give them over to the spirit of modern life outside the school, and convert them into laboratories and modified workshops? Why are our college, Secondary School and Public School courses of study as they are? Why are our children in the Public Schools taught, to a large extent, the same things in the same way that the children of a century ago were taught? Why do a great many college students, notwithstanding the marvellous advance of modern times in other respects, follow the same courses that their forefathers did two centuries ago? For though they may not do so absolutely, it is undoubtedly true that in some of the courses the essentials are the same. In our primary schools we begin in the same way, lay stress on the same things, and though we have added a little here and there yet the emphasis is on the same place. The new work, whether in the form of nature study, art, manual work, agriculture, gardening, or what not, is only an incidental, looked upon with disfavor by many of the teachers, with contempt by the parents, and spoken of in derision as a "frill." It is true that a hundred years ago or less the college student spent most of his time at the classics, with in some cases mathematics, and left college with a "liberal education," though ignorant of history, economics, philosophy, every branch of science, and with a very defective knowledge of his own language. We are all able to call to mind among our own acquaintances men who have

done the same thing, men who are totally ignorant of the simplest phenomena of nature or applied science, and who claim to be liberally educated, indeed would sometimes have us believe that they are the only persons who possess a liberal education. Not all students do that now, but on the other hand it is not possible to secure a university degree in Arts, no matter how broad and accurate your knowledge of modern life and all its multitude of intricate action and interaction, without having spent some time in digging out of a dead language the buried lore of a race that is gone, and of whose life all that is of value to us is preserved in forms much more attractive and easy to get at.

Are these things so as a result of deliberate plan and investigation as to relative merit, or are they simply the "traditions of the fathers"? If we could imagine ourselves without schools, and an educational expert, or even one of ourselves, were called on to devise a system of education, it is very unlikely that if we could divest ourselves of all prejudice and preconceived idea of things, we would organize a school system like that existing at the present. We would, in all probability, pay some attention to the occupations of the people. I would suppose that most of us would require that in the rural schools something should be taught about the plants, animals and fields. In brief, that the burden of the teaching would be related to the habits and occupations of the people and to the welfare of the community. The system would be built upward from the primary schools, the schools of the masses, to the secondary schools and the colleges. Instead of having what has been spoken of as the greatest achievement of modern education, "the gradation and correlation of schools whereby the ladder of learning is let down from the university to the secondary schools and from these to the schools of the people," we would have a ladder built up from the primary, through the secondary schools to the universities. Here, I imagine, is the explanation of the whole question of the character of our schools. They have come down from the universities, and that is why they are unrelated to the life of the people, as I believe they are.

Recognizing, then, the fact that our educational system has been evolved downward, as it were, it is not hard to trace the influences that have operated to make it what it is. There was a day when the learning of the world was to be found only in the

languages of Greece and Rome. Not only were they the medium of culture, but they contained all that was worth knowing in theology, history, philosophy and science. Then it was perfectly true that one could not lay any just claim to education or culture without a knowledge of these ancient languages. That state of things no longer exists. There is enough to be known in any one branch of modern learning to occupy the whole time of the most brilliant individual, without touching the ancient languages. Besides all the learning that was formerly stored up in them is now to be found elsewhere in a form, to most people, infinitely more attractive. There remains, therefore, no reason for continuing the study of the ancient classic languages except their cultural value. We study them now for a reason similar to that which impels some of us to work in a gymnasium, simply for the exercise. Now, gymnasium work is good in its place, especially for those who have nothing more useful to do, and for certain kinds of physical development it possesses advantages over any kind of useful work, so it probably is with the study of the classics.

Time was when the whole of education was on the gymnasium idea. From the days when all learning was bound up in the classics, they were retained because of their value as a mental discipline or gymnastic, and that was held to be the sole end and aim of education. But the advocates of this idea were led even farther astray, for they insisted that true culture could be obtained only from the study of such subjects as could not be applied to bread winning. In other words, education and culture were held to be for the aristocratic and wealthy and not for the common people. Such an idea, repulsive as it may appear to most of us, was accepted quite generally and cheerfully because it was traditional and therefore respectable. It had come down, not from the middle ages merely, but from the ancient Greeks, whose education, both mental and physical, partook of this nature. To regard the exercises of either the gymnasium or the school as a possible source of profit, or of livelihood, was to degrade them. These ideas continue potent to-day. They are still dominant at many of the ancient and renowned seats of learning in Britain and on the Continent, as well as at some on this side the Atlantic. Their great value is readily conceded, and I would not for a moment deny that they are worth

cultivating and fostering. Under such ideas were produced some of the greatest men whose labors have contributed to the advance of science. The craving of the best of humanity for intellectual exercise, apart from any reference to bread winning, is just as natural as the craving for food or bodily activity, as natural as the love of companionship, home or country. The love of literature, art or science for its own sake is eminently worthy of commendation and encouragement. The power to know and appreciate the best that has been spoken and written is an object well worthy of our best efforts, quite irrespective of anything that can be expressed in money or material advantage.

But the culture so eminently worthy of our best endeavor does not constitute the whole of modern education, nor is it all to be found in one group of studies. It does not seem to have entered into the minds of the educators of ancient times, or indeed of modern times, until quite recently, that the education to be given a youth should be a preparation for manhood. The underlying idea was more the preservation of scholastic authority than the development of intellectual independence and moral power. The idea that education was a luxury, intended for the few, while the masses should toil on in ignorance, continued to dominate the whole system. While saying this it is not implied that this idea was deliberately or even consciously held by the educators of recent times, but they still adhered to and upheld a system which was the product of that idea. The educational system of a country should be adjusted to the needs of a majority of the people, and not be controlled by or adapted to the tastes of any class or rank. As soon, therefore, as the question of educational values arises, we must ask ourselves, with candor and with utter disregard of traditions and preconceived notions, what kinds of knowledge are best fitted to develop the mental, moral and material powers of our young people, having due regard to the conditions of civilization as they exist in the world to-day, and especially in our own country. This does not by any means imply that we are to decry liberal culture or learning for its own sake, but it leaves us abundantly justified in criticizing the traditional limitations which have arbitrarily restricted liberal culture to a certain group of studies.

Without for a moment contending that education should be of the kind popularly called "practical," let us look at the

value of some of the subjects at present taught. Let us, if you choose, lay all the stress on culture, keeping in mind the mental and moral development of the student and the conditions of our people. In doing this I need not trouble you with the old and oft repeated argument that if a subject is of the so-called "practical" character, and also will lend itself to culture purposes, it ought to be preferred to any branch of learning possessing one only of these characteristics. This is conceded by everyone. Mathematics, for instance, are retained on our courses for this reason, and no one disputes the wisdom of retaining them, though now and again some enthusiast will tell us that it would be wiser to throw away algebra and geometry than Latin. Nevertheless, when we go beyond arithmetic of a very elementary character, mathematics become purely development or culture subjects, and the fact that they have not been assailed by the advocates of progress shows clearly that we have no quarrel with culture in itself, but with the means of obtaining it. All the various subjects included under the head of English are of the same character. Grammar and rhetoric are largely development subjects, but at the same time are a means to an end. As they are taught in the primary and secondary schools, composition and literature are more largely "practical," though both, but especially the latter, is the most efficient means for mental development and culture we have. My experience leads me to believe that no subject, not even nature study, is less efficiently handled in our Public Schools. Do you ask why? The reason is simply that most of the teachers lack the training, the knowledge, and the experience of life necessary to interpret literature or to lead their pupils either to an appreciation of a passage or a conception of its meaning. Here again there is no difference of opinion. The English subjects are universally conceded to be deserving of much more attention than they receive even yet, though matters in that respect have improved greatly within the memory of many of us.

Now, what have we left? Leaving out the subjects of a purely commercial education, which perhaps may not be seriously considered here, we are back to the old question between nature and classics. The advocates of the latter never lose an opportunity of making an attack on the science and commercial branches,

especially the former. Shall we have science or classics, or both, or neither? Some of us could readily get along without the classics, and I feel confident that our friends of the Classical Section will not accuse me of slandering them when I say that they would be quite willing to see the whole science curriculum, with all the laboratories and other appliances for teaching it, consigned to the junk heap, if to no worse place. In fact, the most of them know nothing about it except that it is a place from which emanates bad smells, that as a department it has come into sharp conflict with them and their "vested rights," and has done more to awaken public opinion to the question of educational values, not to their advantage, than anything else, that it is generally bad, and to be denounced on all fitting occasions.

These things may not be true of all, but one is simply amazed whenever the question comes up at the ignorance displayed by prominent advocates of classic culture. It is undoubtedly true that, as a result of the present system, the science man has a decided advantage over his classical opponent (I say opponent advisedly) in that he of necessity knows something of both sides of the question, while the man of classics knows nothing of science except the smell that issues from the laboratory door, and that to his refined tastes is bad. Excellent illustration of this can be found if you will take the trouble to look up a couple of papers read before the Classical Section of this Association, in 1904, and published in the proceedings of that year. The first is by Dr. Burwash, who starts out quite correctly to distinguish between education and the acquisition of knowledge, and then for the purposes of his paper deliberately identifies knowledge with science. As the whole argument of the paper is based on this fallacy, it is perfectly worthless. One can prove anything if permitted to reason from any premises he may choose to set up. The doctor makes another serious error throughout his paper, and one by no means uncommon with advocates of that side of the question, when he assumes that the culture to be obtained from a study of the literature, philosophy, and religion of an ancient people can be obtained only by a study of their languages. The argument of the paper referred to, if carried to its logical conclusion, is a much stronger plea for the study of Greek and Hebrew than of Latin. But as a matter of fact,

not one person in five thousand who come to know something of the legacy left us by Greek philosophers and Hebrew seers, learned it through a study of the originals. The second paper is from the pen of Principal Auden, of Upper Canada College, and he well shows the traditional spirit of the advocates of classical culture, when he speaks of his opponents as "powers of unclassical darkness." Those of us who have had opportunities of experiencing at first hand the self-complacency, the narrowness of view, the lack of knowledge of every-day phenomena, and the general ignorance of modern affairs of many purely classical scholars, know who are the people who sit in darkness, and can afford to smile at such harmless outbursts.

Now, while arguing thus, I do not wish to be understood as pleading for the abolition of classical studies from our schools and colleges. Far from it. As has already been said in this paper, there is no need to deny that the classics furnish a very efficient means of culture of a certain kind. For students of certain tastes and characteristics, perhaps the best possible. Under a system of education purely classical great men, even great men of science, were produced, though it is probable that the latter achieved distinction in spite of the system. In a young country like ours, where the commercial spirit is apt to dominate, it is perhaps well that there should be those devoted to the study of ancient forms of thought and speech, just as it is well that there should be those devoted to the study of art and music for their own sake. What I do object to is the arrogance of the advocates of these studies, the assumption that all others are uneducated, the "unclassical darkness" myth, and the claim that everybody should have his brain cast in their contracted mould.

When one goes among the rural schools of the country and learns the difficulties teachers have to contend with owing to lack of training in the use and interpretation of the English language, the lack of knowledge of the common occurrences of nature, and sees the need for these things, he wonders how sane men ever came to ask them to spend precious time at school in committing to memory Latin vocabularies or thumbing over Latin lexicons, when it might have been spent to so much better purpose in acquiring culture or useful knowledge.

It may perhaps be said that the question of Latin for Public

School teachers is settled, and therefore out of the field of controversy, but it can never be settled permanently till a student is permitted to qualify for any grade of Public School teacher's certificate, without having to spend on Latin time urgently required, in most cases, for the mastery of subjects vastly more important to him. The present arrangement by which the lower grade of certificate can be obtained without Latin, after which a student finds his way to a higher grade barred by that subject is far from satisfactory. Can anyone give an intelligent and convincing reason why Public School teachers should be compelled to study Latin? If so, he ought to stand up and speak out. I have seen or heard none. So far as I have been able to gather from the writings of the advocates of the study, the reason chiefly put forward is that it assists to a study and understanding of English in perhaps three ways. First, it serves as a basis for and exercise in composition, the structure of the language providing an important training in the logical construction of sentences. Second, it has an important etymological value, and third, it tends to make grammar more scientific. If I am misstating the case I shall be glad to be put right, but I think this includes in brief form the most important claims made for the study in its elementary stages, such as are reached by candidates for a Public School teacher's certificate. Let us grant them all, and who is there that will look candidly at the matter but will admit that all these advantages could be secured quite as fully, if not more so, by devoting the same time and energy to a study of English. And, besides, these effects can react only indirectly and very remotely on the Public Schools.

I would even go a step farther and ask in all seriousness, Is there any reason why a student of to-day should be compelled to make at least some pretense at a knowledge of the classics, in order to obtain a diploma in either arts, medicine or science from any of our universities? I am not urging that the classics should be dropped from the curricula, but simply asking why everyone, no matter what his tastes, aims or aptitudes, should be compelled to take these studies. It certainly is not because there is not enough to occupy four years of the life of any student without them. Experience has abundantly shown that ability to write clearly and forcibly on any subject, literary, philosophical or scientific, can be acquired without them. The

scientific spirit has permeated all our institutions and influenced our thinking on every subject. It is being more and more applied to subjects, till lately bound down by the shackles of tradition, and has raised to a high and dignified level subjects that were not recognized, even a quarter of a century ago, as having a place in a liberal education. Mental discipline can be acquired by the systematic and earnest study of any subject, faithfully pursued with a living conviction of its importance, and why should the man who devotes himself thus to any branch of modern science be denied the right to the certificate of culture contained in a college degree unless he devotes part of his time to studies from which he can derive no further culture, and which may be distasteful to him. Surely there is much more reason for conferring a university degree on a skilled scientist, though he may know nothing of either Latin or Greek, than on a classicist who is ignorant of one of the chief factors in the life of our day. Are our universities and colleges institutions for keeping alive the traditions of a dead age?

The object of education is to make each of us as perfect a human being as he is capable of becoming. Bearing this clearly in mind, and also keeping in view the fact that the great majority never go beyond the elementary stages on the way, it will appear that no hard and fast lines can be drawn, but that the determination of educational values must in every case depend on individual needs and circumstances. The student is always stimulated and helped by a realization of the vital importance to himself of whatever is capable of drawing forth his best efforts. For those whose school life is limited, everything should be encouraged that will enable them to adapt themselves to the complex requirements of modern life. Perhaps no better classification of educational values has ever been given than that put forward by Herbert Spencer, almost half a century ago now. I am well aware that it is claimed that in his riper and more mature years he greatly modified it. This, however, is not correct as to the classification itself, but merely as to the order in which the different classes of knowledge should be presented. Spencer grouped the leading kinds of activity that constitute human life in order of importance as follows:—

1. Those which directly minister to self preservation.
2. Those which, by securing the necessities of life, indirectly minister to self preservation.

3. Those which have for their object the rearing and training of the young.
4. Those which are involved in the maintenance of proper social and political relations.
5. Those which make up the leisure part of life, devoted to the gratification of tastes and feelings.

Mr. Spencer's theory at the first was that the activities placed at the beginning of this list should receive first consideration, owing to their greater importance. This he modified by saying that the best education is the best preparation for them all, and that all should receive a fair share of attention, and not the last only, as has been the traditional custom. If the question be asked what knowledge is best fitted to develop any or all of these activities, the answer will in every case be—science.

It is not to be expected that these conclusions will be accepted by all, but as teachers of science, and, therefore, exponents of the modern and progressive in education, we should be ready to join hands with any one and every one who is willing to go with us onward and upward.

CLASSICAL SECTION.

*SOME PECULIARITIES OF CICERO'S DICTION AS
ILLUSTRATED IN THE "PRO LEGE MANILIA"
AND THE "PRO MARCELLO."*

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(Extracts from President's Address.)

Certain peculiarities of Cicero's style, that offer the most striking contrast to the forms of modern diction, may be stated in concrete terms and reduced to rules which supply a working basis for the expression of the orator's thought in modern English. Of such peculiarities the following may be selected:

I.

First—The word *respublica*, the people's interest or concern, should be written in two words, and each word given its full force and translated to suit the context. For example:*

(a) Quid hunc hominem magnum aut amplius de re publica cogitare [putare possumus] qui pecuniam ex aerario depromptam . . . Romae in quaestu reliquerit? p. 37.

What lofty or generous sentiments with regard to public duty can we suppose a governor to entertain who (when he goes out to his province), leaves behind him public funds withdrawn from the public treasury at interest (in his private account) at Rome?

The meaning "republic" is a rare one. Thus:

(b) Cur non, cui cetera summa cum salute rei publicae commissa sunt, hoc quoque bellum regium committamus? p. 50.

Why should we not entrust this war with the King to one to whom his other powers have been entrusted with perfect safety to the republican constitution?

So too (m. 20): *Viris lapsis opinione officii stulta et specie quadam rei publicae.*

d. = Pro Lege Manilia, m = Pro Marcello.

Men whose lapse was due to a foolish conception of duty and to the vision of a free republic.

Again: (c) *Id omne ego me rei publicae causa suscepisse confirmo.* p. 71.

I solemnly assert that I have undertaken the advocacy of this cause in the public interest.

(d) *Causam rei p. periculaque rerum suarum detulerunt.* p. 4.

They have confided to me the condition of public affairs that is so threatening to their private interests (really one idea: vide III. below).

(e) *Sin antem vos plus tum in re p. vidistis, . . .* p. 64.

But if you, on that occasion, showed more political insight . . . (lit., saw more into the people's interest).

(f) *Sullam in Italiam res p. revocavit.* p. 8.

The political situation recalled Sulla to Italy.

(g) *Cunetam rem p. res tuae gestae amplexae sunt.* m. 25.

Your reforms have covered the whole field of political activity.

(h) *Hic tu modum vitae non salute rei p. sed aequitate animi definies!* m. 25.

Will you accordingly determine the length of your life, not by the requirements of the public service (lit., the well-being of the common weal), but by the dictates of philosophic apathy?

The most usual meaning of *res publica* is "state," "country," "society." Thus:

(i) *Res p. frui debet summi viri vita atque virtute.* p. 59.

Society should get some good from the life and ability of a great man.

(j) *Non fuit recusandum quin quassata res p. perderet ornamenti dignitatis et praesidia stabilitatis.* m. 23.

It was inevitable that society (the social organism) should be violently disturbed (by the violence of the war), and lose not only the pageantry of its pride (revenue, public buildings, etc.), but the safeguards of its stability (respect for law, marriage, etc.).

(k) *Doleo cum res p. immortalis esse debeat, eam in unius mortalis anima consistere.* m. 22.

I regret to think that, while society should properly possess some element of permanence, its existence should depend upon the mortal life of a single citizen.

II.

For the simple generic Latin adjective, taking its color largely from the context, English requires epithets that are specific, picturesque, and more particularly applicable to what is described. Thus:

(a) *Tanta vilitas annonae . . . consequuta est unius hominis spe . . . quantam vix in summa ubertate agrorum diurna pax efficere potuisset.* p. 44.

Such low prices for agricultural products resulted from the confident hopes entertained of a single individual, as a long peace could scarcely have occasioned combined with fields of the richest fertility (lit., in the case of the richest fertility of fields: emphatic *in*).

(b) *Auctoritatem magnis vestris iudiciis amplificatam.* p. 46.

His prestige enhanced by the highly significant judgments you have passed upon him.

(c) *Tanta in eo rei p. bene gerendae spes constituebatur.* p. 61.

Such confident expectation of the successful administration of public affairs was centred in him.

(d) *Cum ad ceteras summas utilitates haec quoque opportunitas adiungatur ut . . .* p. 50.

When to the other striking advantages of the situation there is this happy circumstance added that . . .

(e) *Cepit magnum suae virtutis et dignitatis fructum.* p. 59.

He reaped the rich reward of his high character and extensive popularity. The omission of the adjectives is characteristic.

(f) *Itaque, C. Caesar, sic tibi gratias ago, ut omnibus me rebus a te non conservato solum, sed etiam ornato, tamen ad tua in me unum innumerabilia merita, quod fieri iam posse non arbitrabar, maximus hoc tuo facto cumulus accesserit.* m. 34.

I thank you accordingly, Caesar, and in thanking you I wish you to understand (lit., I thank you with this limitation that: *sic —ut*, restrictive), that though I have been preserved by you in every sense of the word (rank, property, life), and loaded with every mark of distinction, upon your innumerable acts of kindness to myself there has been set, by this act of yours, a glorious crown —and that is a consummation I could never have believed possible.

III.

For an emphatic attribute—either an adjective, an adjective-phrase, or an adjective-clause—Latin often uses an abstract noun. Thus:

(a) *In armis militum virtus, locorum opportunitas multum iuvant.* m. 6.

Valiant troops and strong defensive positions are important factors in military success (lit., goodness of positions).

(b) *Cum antea nondum huius auctoritatem loci attingere auderem.* p. 1.

Since I did not as yet dare to set foot upon this time-honored spot.

(c) *Cum me et reliquos viros amplissimos reddidit, quorum frequentiam et dignitatem hoc ipso in consessu videtis, non ille hostes induxit in curiam.* m. 13.

When he restored me and the other honorable persons whom you see in this very assembly, so many in number and eminent in station, he did not introduce traitors into the senate-house (lit., whose numbers and rank you see here=whom you see here so numerous and so eminent).

(d) *Tum te, cum et patriae quod debes solveris et naturam ipsam expleveris satietate vivendi, satis diu vixisse dicito.* m. 27.

When you have paid the debt you owe your country and satisfied the demands of nature with adequate length of life, then say that you have lived long enough (lit., with satiety of life, life that shall satisfy you).

(e) *Parietes tibi gratias agere gestiunt quod futura sit illa auctoritas in his maiorum sedibus.* m. 10.

The very walls of this Chamber are yearning to thank you because a man of such extensive influence will soon be among the benches that were so dear to his ancestors (illa illius).

(f) *Maiores semper ad novos easus temporum novorum consiliorum rationes aecommodasse.* p. 60.

That our ancestors always adopted the planning of new policies to new emergencies as they arose (lit., to new occurrences of emergencies).

IV.

Latin resolves into two or more nouns connected by *et*, an expression which in English takes the form of a noun with an

adjective or adjective-phrase (Hendiadys). The connected nouns are sometimes synonymous, but most frequently not. Thus:

(a) Sed tamen cum in animis hominum tantae latebrae sunt tantique recessus, augeamus sane suspicionem tuam. m. 22.

But as there are so many hidden corners in the human heart (*i.e.*, where evil thoughts may lurk), let us by all means strengthen your suspicions.

(b) Quod ut illi proprium ac perpetuum sit, Quirites, velle et optare debetis. p. 48.

That such good fortune may in his case be an imperishable possession, you should fervently pray.

(c) Locum exuvii et classium spoliis ornatum. p. 55.

A place adorned with naval trophies stripped from hostile fleets.

(d) Te vero, cuius mentem sensusque et os cernimus, ut quicquid belli fortuna reliquum rei publicae fecerit, id esse salvum velis, quibus laudibus efferenius? m. 10.

How shall we sufficiently commend you, when we see upon your face the feeling of your heart,—the determination, I mean, to preserve any part of the free constitution that has escaped the ravages of war? Here the defining *ut*-clause determines the main idea (*sensus*).

(e) Istam tuam et legem et voluntatem et sententiam laudo. p. 69.

I commend your friendly feeling towards P. as expressed in this law (*lit.*, this law, good-will, and opinion of yours).

(f) Reliquum est ut de Q. Catuli anotoritate et sententia dicendum esse videatur. p. 59.

It remains, apparently, to refer to the highly influential opinion of Catulus (verb for English adverb).

(g) Ego me statui, Quirites, rei publicae dignitatem meis omnibus commodis et rationibus präferre oportere. p. 71.

I made up my mind that I ought to prefer the honor of the country to all my own plans of advancement (*lit.*, advantages and plans).

(h) Si vero ad humanos casus seeleris etiam accedit insidiarumque consensio, quem deum posse opitulari rei publicae credamus? m. 23.

But if conjoined with the accidents to which humanity is exposed, there is a combination of evil men to plot against your

life, what god are we to suppose can succor the state? (lit., a combination of wickedness and plots).

(i) Testorque omnes deos et eos maxime qui huic loco temploque praesident. p. 70.

I adjure all the gods, and especially those who protect this sacred spot (lit., this spot and sacred place).

(j) Neque me impediet eniusquam inimicum edictum quominus vestrum ius beneficiumque defendam. p. 58.

Nor shall the hostile edict of anyone prevent me from depending your right to give the office to anyone you please (lit., your right and office conferred).

(k) Nihil est enim opere et manu factum quod non aliquando conficiat et consumat vetustas. m. 11.

There is nothing made by the work of man's hands that time does not at last utterly destroy (two verbs for a verb and an adverb; vide V. below).

(l) Insula Delos quo omnes undique cum mercibus atque oneribus commeabant. p. 55.

The Island of Delos, to which men resorted from every country with cargoes of merchandise.

(m) Publicani suas rationes et copias in illam provinciam contulerunt. p. 17.

The Publicani have carried their many speculations to that Province (lit., their plans and their wealth).

(n) Haec fides atque haec ratio pecuniarum, quae in foro versatur, implicata est cum illis pecuniis Asiaticis et cohaeret. p. 19.

The system of credit in vogue in the Forum here (*i.e.*, advancing money to the Publicani), is indissolubly bound up with the payments that are made in the Province of Asia.

(o) Difficile est dictu quanto in odio simus propter eorum libidines et iniurias. p. 67.

It is difficult to describe how deeply we are detested owing to the licentious outrages committed by our Governors (lit., owing to their passions and outrages. In odio esse =the passive of odi).

(p) Cretensibus, cum legatos deprecatoresque ad eum misissent, spem ditionis non ademit. p. 35.

When the Cretans had sent envoys to entreat his favorable consideration, he did not destroy their hopes of a capitulation.

It is interesting in this connection to observe that instead of immanitate barbaras, plunged in savage barbarism (of m. 8), he uses (*Verr.* 3, 23), immanitate ac barbaritate.

V.

Two or more verbs connected by *et* are used in Latin for the English verb with an adverb of degree or result. This is the natural sequel to the poverty of Latin (already referred to) in the matter of adjectives. Examples of this peculiarity may be seen in IV. (b), (k), (n). Other examples are:

(a) *Karthagienienses, homines in maritimis rebus exercitatis-simos paratissimosque, vicerunt.* p. 55.

They won victories over Carthage, a nation trained to the highest pitch of efficiency in naval warfare (lit., most highly trained and most highly prepared).

(b) *Omnia sunt exitanda tibi, C. Cæsar, uni quæ iacere sentis belli ipsius impetu perculta atque prostrata.* m. 23.

You and you only, Cæsar, must restore all the institutions which you see are languishing, striken to the earth by the violence of the war and nothing else (the metaphor is of a vine).

(c) *Quo mihi indignius videtur obtrectatum esse. . . . Cn. Pompeio expertenti ac postulanti.* p. 57.

On this account it seems to me all the more outrageous that objection has been made to the appointment of Gabinius, when Pompey urgently preferred such a request.

(d) *Impetus hostium repressos esse atque retardatos.* p. 13.

They see that the enemy's attacks have been materially checked.

(e) *Quod bellum exspectatione eius attenuatum atque imminutum est, adventu sublatum atque sepultum.* p. 30.

This war was reduced to comparative insignificance by the expectation of his arrival, as by his arrival it was brought to a final conclusion (lit., carried away and buried, concluded and brought to an end).

(f) *Sed eam rem populus R. omnium studio visendam et concelebrandam putavit.* p. 61.

People felt that the whole nation ought to throng with enthusiasm to witness this spectacle (lit., that this spectacle should be witnessed and thronged by the enthusiasm of all).

Other examples can easily be found in the speeches; as, *Vident*

et sentiunt, they clearly see; oblatum et datum, so freely given; tueri et conservare, protect in safety. But I will cite only one passage more, *i.e.*, Bellum tam divisum atque dispersum (p. 30), a warfare waged at so many different points (of the Pirate war waged from one end of the Mediterranean to the other). This phrase, compared with Bellum longe lateque dispersum (p. 35), shows the verb and the adverb interchangeable.

VI.

An objective genitive may represent not only an accusative but a dative, an ablative, or a preposition and its case.

(a) *Quis enim est optimarum artium studio praestantior?* in. 4.

Who is more distinguished by zeal for liberal culture? (*artium studio* representing *artibus studere*).

(b) *Summa enim omnia sunt, sed ea magis ex aliorum contentione quam ipsa per se cognosci atque intellegi possunt.* p. 36.

Those qualities all exist in Pompey in the highest perfection, though they can be fully understood rather from a comparison with others than independently (*aliorum = cum aliis*: the race he runs with others).

(c) *Hiemis enim non avaritiae perfugium maiores nostri in sociorum tectis esse voluerunt.* p. 39.

Our ancestors wished that there should be in the homes of our subjects a refuge from the storms of winter and not a retreat for rapacity (*hiemis = ab hieme*).

So too (p. 7), in *aditus laudis*, an avenue to distinction, *laudis* is for *ad laudem*.

VII.

Verbal nouns *in-io* are frequently active and have the force of English verbal nouns *in-ing*. Thus :

(a) *At enim Q. Catulus . . . itemque Q. Hortensius . . . ab hac ratione dissentiunt.* p. 51.

But, I shall be told, Quintus Catulus and likewise Quintus Hortensius dissent from this way of thinking.

(b) *Ipsa re ac ratione exquirere possumus veritatem.* p. 51.

From a consideration of the facts and nothing else, we may discover the truth (lit., from the fact and the thinking of it).

(c) Obsolevit iam ista oratio re multo magis quam verbis refutata. p. 52.

That way of talking is out of date, refuted rather by fact than by argument.

(d) Pro sociis vos contra hostes exercitum mittere putatis an hostium simulatione contra socios? p. 66.

Do you imagine that you are sending out an army to defend the provincials or—under the pretence of an enemy—an army to attack them? (*simulatione hostium* = *simulandis hostibus*).

(e) Tua enim cautio nostra cautio est. m. 21.

Protection for you is protection for us. (*tua=tui*, obj. gen. *Tua cautio=te* (or *nos*) *tibi cavere*, that you should protect yourself, or that we should protect you).

(f) Una significatione litterarum cives R. necandos denotavit. p. 7.

By the contents of a single letter he marked out Roman citizens for death (lit., by one letter's signifying, by what one letter contained).

(g) Non amoenitas ad delectationem (eum devocavit), non nobilitas urbis ad cognitionem. p. 40.

No beauty of landscape lured him to enjoyment, no celebrated city lured him to explore it.

Here it may be remarked that while *delectatio* has only one of the three forces of a noun in-io (the third, or passive force, enjoyment), *cognito* has all three, i.e. (1) ascertaining, (2) an ascertaining, an inquiry, and (3) ascertainment, knowledge.

MATHEMATICAL AND PHYSICAL SECTION..

***MATHEMATICS IN THE SECONDARY SCHOOLS OF
GREAT BRITAIN, GERMANY AND THE
UNITED STATES.***

R. W. HEDLEY, B.A.

One might be inclined to think that such a subject as mathematics, which is perhaps one of the most ancient as well as one of the most important, would have ere this an exact and uniform development in the various secondary schools, especially among all English-speaking people.

On the contrary, a slight examination into the curricula of mathematics will reveal a considerable divergence in regard to the development of the subject, and at least tempt one to proceed farther in search of the main features of some of the leading educational systems. This led me to examine in a very general way the mathematical development of the secondary schools of Great Britain, Germany and the United States.

At the outset there are certain difficulties that ever prevent close comparisons to be made. There are national distinctions which affect the whole educational system, and the mathematical department as much as any other. In Germany it is a privilege to attend a High School and only a limited number is allowed to attend, and the fees are high. In England, while there are no restrictions as to numbers, the fees are quite high, while in the United States any one may attend, and the fees are so light that they may be said to be within the reach of all provided the necessary entrance standard is reached.

There is also a national distinction in the value of knowledge. The Anglo-Saxon race in general does not see the importance of gaining knowledge for the purpose of being efficient in the same. We rather pride ourselves for possessing such qualities as vigor, energy, practical capacity, straightforwardness, etc. In Germany there is stronger love for abstract knowledge, a greater reverence for learning. "The love of the thing for its own

sake," is their motto. This love of knowledge leads to a clearer sense of its value, and this to a greater capacity for skilfully applying knowledge and a willingness to submit to severer kinds of educational discipline.

As to the qualification necessary for teachers the German system is perhaps the strongest. Before entering upon the training as a teacher the candidate must produce a certificate of having attended a gymnasium (corresponding to our High School), and must have been also a student for three years in a German university. The examination is divided into two parts: First, the written examination, in which the candidate prepares privately three papers on assigned topics; and if he completes this examination successfully he then has to pass an oral examination in all subjects. This is a test of his culture and attainments. Then follows a year of pedagogical training similar to our Normal College, and if successful he spends another year in a different institution, in which, from time to time, he has complete charge of the class. The consequence of this is that those who survive all these tests, few of them prove later to be poor teachers, and that in all the German teaching leads the world.

In the United States, New York State as an example, the candidate must possess a graduation certificate from a college, then "graduate from a school or class for the professional training of teachers having a course not less than 38 weeks," and which must also be approved by the State Commissioner; then three successful years' experience in teaching is required before a permanent certificate is given.

To make the comparison of work done as clear as possible it is necessary to outline the nature of the various secondary schools in regard to the standard required for admission and the course of study. In England there are Grammar Schools, Preparatory Schools, Public Schools and Day Schools in which secondary education may be had. In some Grammar Schools the entrance requirements are very low. An age of seven years and a knowledge of reading, writing and the first four rules of arithmetic is necessary. However, these schools are sub-classed into two divisions, the junior (Forms I., II., III.) and the senior (Forms IV. V. and VI.), the latter corresponding more with our High Schools. The Preparatory Schools resemble somewhat the Senior Division of the Grammar Schools. The

Public Schools as a rule qualify its graduates for the professions or for entrance to the universities, while the Day Schools in general give more attention to mathematics and science. They have achieved considerable success in the larger cities.

In Germany the secondary schools are more uniform than in England. The three class classes of schools, namely, the Gymnasium, Real Gymnasium, or Oberrealschule, differ only in the classics. The first gives instruction in both Latin and Greek, the second in Latin only, and the third omits both Latin and Greek. The standard for admission is ability to read German in both German and Latin characters, have a clear and legible handwriting in German and Latin script, to write fairly well from dictation, know a little Biblical history and be familiar with the four fundamental operations in arithmetic; also for admission the candidate must be nine years old. The pupils are classified into nine classes, the course of each intended to be one year. These classes may be denoted by VI., V., IV., IIIB., IIIA., IIB., IIA., IB., and IA. Class VI. would resemble closely our Junior III., V. with Senior III., and IV. with Junior IV., and IIIB. with our Senior IV. of the Public Schools, and so on, that IA corresponds somewhat with the first year at the university.

In the United States each State controls its own system, yet in general there is considerable uniformity. The work is divided into a number of grades. I. to VIII. cover our Public School course fairly well, while Grades IX. to XII. that of our High School.

Having mentioned the various divisions in the schools I shall now, as far as possible, give the curricula. In Great Britain this presents some difficulty owing to the nature of the schools, and also to some extent the varied nature of the examination. In Germany there is almost a uniform curriculum. Here beginning with IV., corresponding somewhat to Junior IV., we have per week

"Arithmetic (two hours), decimals simple and compound, proportion, with integers and fractions; plane geometry (two hours), the straight line, angles, triangles.

"IIIB.—Arithmetic (one hour), fundamental operations with absolute numbers, plane geometry (two hours), parallelogram, circle.

IIIA. (Our Form I.)—Algebra, first half-year one hour, second half-year two hours, covering equations of first degree with one and several unknowns, exercises in fractions, positive integral exponents alone used; plane geometry, two hours first half of year, one hour during remainder; theorems concerning the quality and the areas of rectilinear figures, theory of similarity.

IIB.—Four hours per week. Algebra equations, including simple quadratics (negative and fractional exponents used); arithmetics, exercises in computations with logarithms, computations with circumference and area of circle; trigonometrical ratios, computations of right and isosceles triangles.

IIA.—The theory of roots and logarithms, difficult quadratic equations, arithmetical and geometrical progressions; plane trigonometry, computations in regard to triangles, quadrilaterals and regular polygons.

IB. (Our Upper School).—Algebra, review, and compound interest, annuities and imaginary quantities; completion of plane trigonometry, De Moivre's theorem, etc.; solid geometry commences." The next year we have the binomial theorem in Algebra, with conic sections introduced, etc. This programme is rigidly adhered to.

In the State of Michigan, as an example, in the ninth grade the pupils stress Algebra during the year. "The first half of year—Introduction, fundamental operations, simple equations not involving fractions, with ample application to problems, and factoring. During the second half of year, review, then highest common factor and least common multiple (factoring method chiefly), fractions, including ratio and simple proportions; simple equations in one, two and three quantities, with attention to graphs of simple equations; involution and evolution, with positive integral exponents."

"In the tenth grade geometry is stressed with algebra and arithmetic to co-ordinate with geometry as much as possible. During the first half-year seventy theorems should be given with twice as many exercises requiring original proof. In the second half-year the subject of plane geometry should be finished. It should include from seventy-five to ninety theorems and twice as many exercises, including those requiring original proof and many arithmetical examples, especially in mensuration of plain figures."

In the eleventh grade "one half year is spent with algebra and the work to the end of quadratic equations is completed. The second half year is spent with solid geometry, with a review of plane geometry, and mensuration of solids."

In the twelfth grade, according to curriculum followed in the State of New York, "advanced arithmetic, and algebra; the latter includes progressions, simple determinants, binomial theorem, undetermined co-efficients, logarithms," while a course in plane trigonometry is given to those who intend to go to college.

It is best here to draw attention to two almost opposite views of a curriculum. In Germany subjects like geometry and trigonometry are commenced early and continued through several years until the subject is thoroughly covered, while the general course in the United States is to stress one subject for a year, then another the following year until the course is finished.

In regard to the instruction given in mathematics much may be said, but it is the intention here to give the main principles as far as possible. In Germany the text-book is in the background. The teacher is the source of the pupils' knowledge. The text-books, as a rule in Germany, are merely collections of exercises. Home-work is also very light, the maximum being one hour in lowest to three hours in highest form. Great stress is laid on the class exercise. The Socratic method of teaching is almost universal with them. The work is divided into very simple steps, and the subject grows little by little by skilful questioning. Then each fact is repeated and established over and over again, until it is deeply planted in the mind of the slowest before taking up any distinctly new matter. The blackboards in the class-room are small, not more than 5 feet by 8 feet, sometimes fixed to the wall, sometimes not. This feature is characteristic of some of the English schools, but in others the black-board is more in evidence. In Germany class work in concert is carried out very much. Some exercise is dictated, the pupils work at it simultaneously, one reading as he works; after finished. As a general thing the teacher works with the pupils a few steps another begins, and so on until the exercise is finished and questions every statement that is made. The exercises that are written are accurately and neatly finished; any disregard in these matters is sharply criticized. This standard is kept to the

very last. In England the general tendency is to a more practical method of instruction. By "practical" is not meant a certain amount of mechanical drill in the application of arithmetic to business, but rather a tendency to strengthen the reasoning powers by a judicious amount of practical or visual exercise. This feature has not yet become a definite principle, but each teacher having this aim in view devises the best plan possible.

In regard to the subject of arithmetic some comparisons may be made. In Germany it is limited to the most essential work in computation. Five place logarithms are used in computation in forms corresponding to what would be our middle school. In England there is a sort of revival of the subject as a mental discipline, but under more practical methods. This is accomplished by giving concrete examples as far as possible, avoiding cumbersome and complicated fractions, and postponing technical applications which involve an extended knowledge of business procedure. The Graphic method is used in the solution of problems. In the United States the tendency has been to curtail arithmetic. Thus "compound proportion, cube root, abstract mensuration, absolute denominata quantities to be largely omitted." They claim that some of these subjects "have survived from an epoch when more advanced mathematics was scarcely known in our schools, so that the course in arithmetic was expected to be all that a pupil would ever know of mathematics. . . So far as any useful principles are embodied in them they belong to algebra and can be taught by algebra with such facility that there is no longer any sound reason for their retention in the arithmetical course." The result is, if a paper in advanced arithmetic is given on a college entrance paper the subject is taken up after the student has completed a course in algebra and plane geometry.

In algebra little change is noticeable except in the graphs in various ways, especially in England; in fact, judging by comments it seems to have been rather overdone. In elementary algebra the order of the development of the subject and the use of fractional co-efficients as early as possible are noticeable features; in fact there are few text-books in algebra superior to the English text-book in a rational method of development of the subject. In the requirements in algebra in Great Britain and the United States for entrance to certain universities, a

more extended knowledge of the subject is required. This includes theory of logarithms, convergency, and divergency of infinite series, and fundamental principles of determinants. The questions asked are quite elementary in character, judging by the examination papers. In Germany, on the other hand, the course corresponding to our upper school extends only to the binomial theorem, but it is more intensive in character.

The subject of geometry presents perhaps the greatest variety in manner of treatment of any mathematical subject in secondary schools. Not so much as to the general principles of the subject as to the extent and manner of treatment. In Germany it is begun early, perhaps with the standard of our Junior IV. in the Public School, and the subject completed in III.A, or what compares somewhat with the lower school, while the general plan in the United States is to stress demonstrative geometry in the second year or tenth grade. In all schools Euclid has been set aside and various systems of geometry substituted. This accounts for the early commencement of geometry in Germany. But in England a difficulty has arisen because of the large variety of text-books which have no uniform sequence of important propositions. While it is unnecessary that geometry should be confined to fixed grooves, it is important that the subject should be placed on a well-established foundation, and have a certain sequence of important propositions, so as to make soundness of proof a certainty. And the subject is of little importance if the student does not get a clear conception of the methods of proof of the fundamental propositions. This trouble is increased in Great Britain by the variety of university examining boards. Thus the Oxford and Cambridge School Board have this note, "Any proof of a proposition will be accepted which appears to the examiners to form part of the systematic treatment of the subject." In the geometry schedule of the Cambridge Local Examination I read, "Any proof of a proposition will be accepted which appears to the examiners to form part of a logical order of treatment of the subject." Another quotation from the Oxford and Cambridge School Board is "So far as possible candidates must aim at making the proof of any one proposition complete in itself." This requirement may perplex many candidates as to how far he should go to make a proof "complete in itself."

The subject of trigonometry occupies a more prominent place in Germany than in America. It is commenced early and treated in an elementary manner in the first year, but in the second year computation of triangles, quadrilaterals, etc., is covered, while in the third years the addition theorems are completed. In the United States the subject of solid geometry is dealt with to some extent, also spherical trigonometry as far as the "derivation of formulas relative to right spherical triangles" is taught as a sort of extension to plane trigonometry, while in solid geometry one syllabus mentions among others "the properties and measurements of prisms, pyramids, cylinders and cones: the spheres and the spherical triangle," and the "application of principles to the mensuration of surfaces and solids."

The examinations present some variety. In Germany the first formal examination is taken at the end of II.B. There are two examinations during each year, viz., the written, which occupies four hours, and the oral. The latter is taken if the candidate passes the first. The final examination takes five hours, and is divided into four parts, plane geometry, solid geometry, algebra and trigonometry. If the answers are exceptionally good the candidate may be exempt from the oral examination. This examination is conducted by the Royal Commissioner. The candidate is questioned on a particular subject by the Commissioner and the teacher of that subject in the presence of other teachers. The questions asked on the written papers are much similar to questions on the problem paper of honor matriculation to Toronto University. The first question, 1895, at the Christmas examination at Freidrichs Gymnasium was, " $x^5 = 1$. The five roots are to be determined both algebraically and trigonometrically."

The examination papers set by the various colleges, universities, etc., in England are so numerous that the remarks here will be confined to the Preliminary Junior and Senior Entrance Examinations to Oxford and Cambridge Universities of the past years. These examinations take place in July and December. In the preliminary examination the papers in arithmetic, algebra and geometry have about six to seven questions each, suitable and similar to questions to Form II. The paper is one and one-quarter hours for junior and one hour for senior in

length. The geometry is largely constructions and measurements, with elementary proofs for examination. "Prove that the diagonals of a parallelogram bisect one another. Draw a parallelogram whose diagonals are of lengths 4.5 centimetres and 9.3 centimetres, and make with each other an angle of 62 degrees; also find the area of the parallelogram." In the algebra paper (Cambridge) is the following question: "Draw in one figure the graphs represented by (1) $y = 5 - 3x$, (2) $y = \frac{1}{3}(x + 5)$. Determine by measurement the value of x where they cross one another. (Take not less than half an inch as a unit on your squared paper.)" In the junior local examination a similar but more difficult question in graphs is found. Another feature is that any candidate who writes on the trigonometry paper is given a set of logarithmic tables so that he may choose the line of solution he may decide upon.

The final geometry paper is somewhat more theoretical than the preliminary one, but all figures must be drawn accurately with a hard pencil. The only arithmetic paper in the Junior Oxford Locals was one on mensuration, in which all diagrams are to be accurately drawn, and as far as possible four place logarithmic tables are to be used in making calculations. There is an arithmetic paper in the Junior Cambridge Local, and one in the Senior, but they are quite elementary in character. The other papers in the Senior Locals are geometry, algebra, plane geometry, also analytical geometry and differential calculus in one paper. In the first three just mentioned the papers are fairly heavy, but at the end of the paper are several questions somewhat simpler than the others which may be taken instead of an equal number in the main portion of the paper, but considerably lower marks will be assigned to them.

In the academic examination papers of the State of New York, in which there are four examinations during the year, viz., September, January, March, June, there are two arithmetic papers, a junior and an advanced. The standard of the junior's paper compares closely with our junior metric paper except that the standard is 75 per cent., but there are fifteen questions asked, while the candidate is to "answer the first five and any five of the remainder." The advanced arithmetic paper forms part of the final examination. Twelve questions are asked, eight questions to be answered, and no more. The standard to pass, 75

per cent. One question on June, 1905, paper is as follows: "A standard candle is 3 feet and an electric light 12 feet from a wall on which they cast shadows of equal intensity. Find the candle power of the electric light, given the intensity of the light varies inversely as the square of the distance from the source of illumination."

The plane geometry paper was divided into three divisions, five questions in each, the first part being theoretical, the second of the nature of mensuration and the third part of somewhat difficult theorems or deductions. Eight questions constitute a full paper, of which one must be taken from each section.

This gives but a general idea of the nature of the examinations, but there are two features which are worth mentioning, the use of logarithmic tables at an early date in mensuration and in solution of triangles in the papers in trigonometry. Another is that an arithmetic paper involving annuities, etc., is taken up after advanced work in algebra has been covered, the consequence being that the calculation part of the problem presents little difficulty.

In comparing results that are obtained in these three countries we should first state the proportionate amount of time spent on this subject. The average in Germany is 13.6 per cent., according to Professor Young, and in American schools 23.5 per cent., and in English schools about 18 per cent., and in comparing these figures Professor Young makes this assertion, "In the corresponding nine years we Americans accomplish no more in mathematics than do the Prussians, and that we use up seven-fourths as large a fraction of time as do the Prussians," and on examination into the causes for this he arrived at this conclusion, "That the excellence of the Prussian work is due to (1) the central legislation and supervision, (2) preparation and status of the teachers, (3) methods of instruction." In regard to the first he favors a "longer High School course of study where algebra and geometry could be commenced earlier and where the pupils may have the benefit of trained teachers in mathematics for a longer period. In regard to the teachers he claims "The excellence of the Prussian work in mathematics may be attributed to the scientific and pedagogic preparation of the teachers for the work, more largely, perhaps, than to any other single cause," and coupled with this the fact that his pro-

fession is for a life time. The admirable salary and pension system frees him from financial care and worry, and he then can give his entire thought and energy to the profession. Then, too, the Germans have settled beyond experiment the order in which the subjects are begun, and the rate in which they are continued. Arithmetic is restricted to the most essential work in computation. Geometry is commenced before Algebra, as the elements therein are more simple and concrete.

In conclusion, it has been asserted that "Germany has devoted more thought and labor to the science and art of teaching than any other nation in the world." The consequence is that "a surprisingly large number of Germans possess the power of skillfully teaching other people the details of some practical business, and their pupils are as prepared to learn as their instructors are to teach." Such results are not to be lightly passed over, and their system should have at least our careful investigation.

A DISCUSSION ON THE EFFECTS OF THE RECENT
CHANGES IN GEOMETRY, ON THE PROGRESS
OF THE THEORETICAL WORK OF THE
LOWER SCHOOL (FORM II.)

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So many subjects have now found a place on the curriculum of our High Schools that any method of economizing time, in mastering the essentials of a subject, must receive the most careful consideration. This is, no doubt, one of the reasons for departing from Euclid's methods.

Many of Euclid's propositions are non-essential and may without loss be omitted. Other propositions that have been found to be important in the development of the subject, as well as of practical importance, may with profit be inserted.

No one can teach Euclid year after year and not wish for changes of some kind, either in the arrangement of the propositions, or in the notation, or in the proofs themselves, or perhaps in other ways.

Much time may be saved in the study of geometry (1) by changes and extensions of Euclid's definitions to meet our modern conceptions of the subject, (2) by a complete re-arrangement of the propositions, and (3) by the adoption of modern methods and a modern notation.

Will this change that has taken place, or is taking place at the present time, be all for the better? Will there be no streams to cross that have not been bridged?

"To change," or "not to change," has been the question. Whether to remain on this well-beaten path, though it has many unnecessary windings, or to try to find one by which we may reach the goal easier, quicker, and without the sacrifice of anything that is essential.

One fear has always been that if this path were left no single one would be found to take its place. Complete agreement may not be necessary, but the paths, if different, should at least be in accord with one another.

Until recently no agreement seems to have been reached by those advising with the "powers that be" regarding this change, and the reason would seem to have been that until lately

no one in whom all had confidence was ready to lead the way. The path has now, however, been clearly marked out. There may be others, but these, though perhaps not co-incident with the one already taken, should at least be parallel.

There may have been other reasons why this change has been slow to come. There is a decided objection on the part of many mathematical men against applying any method other than Euclid's to the solution of any geometrical proposition. There was the same objection some fifteen or twenty years ago against accepting algebraic solutions for problems under the heading "Arithmetic."

No one will deny the advantage in training, in many cases, of the purely arithmetical solution over that of the algebraic, nor will any one doubt the advantage of the geometrical demonstration over that of the purely analytic proof. But there are cases, and many of them, where the advantage is not so apparent, and others where the price paid is too high. There should be a greater freedom of choice in methods of proof in the future than there has been in the past.

At the present time we make a free use of geometrical representations to give clearness to the meaning of the solution of an algebraic equation. No algebra is now considered complete without its chapter on graphs. This judicious interfusion of the various branches of mathematics in the development of any particular mathematical subject can result only in a clearer knowledge of that subject.

When the proposal was made to depart from Euclid's order and methods and introduce the study of geometry by the inductive method based upon a practical course, I was one of those who expressed the fear that the rigid theoretical proofs might be pushed too far into the background, and the experimental proofs accepted by the students as sufficient. My year's experience has, however, led me to the conclusion that my fears were groundless. There is, of course, a possibility of treating the whole subject in a loose, empirical manner, and of the students receiving a medley of unconnected geometrical beliefs, based on hasty inductions from badly constructed figures, but there is no danger of the mathematical teachers in this province allowing these mistakes to occur.

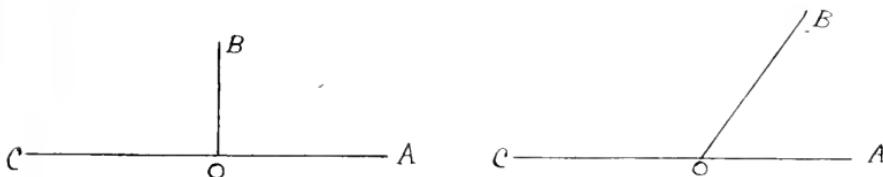
It will take some time, I imagine, to so adjust the practical work as to bring it into complete harmony with the theoretical.

There is a fruitful field here for wasting time. The one course, though perhaps complete in itself, must always be treated as leading up to the other.

My year's experience has shown me, what would naturally have been inferred, that the students with the poorest mathematical ability are the ones to benefit most from the practical course.

So far as my own class is concerned the practical work on similar triangles was not touched upon the first year at all, but the rest of the work was fairly well covered. After finishing the first two books, as given in the new text-book, I began the practical work on similar triangles.

I should like to point out what I have found to be the greatest advantages in the development of the subject, according to the plan of the new text-book over that of the old. Some of these advantages come from the modern conception, or definition, of a straight line, the extension of the definition of an angle, so as to include an angle of any magnitude, as well as a straight angle, and the treatment of parallel lines.



If a line OB , begins from the initial position OA , and turns about O , till it takes the position OC , so that CA is a straight line, OB is said to have turned through a straight angle. If OB takes a position, such that angle AOB is equal to angle BOC , each is called a right angle. If OB divides the straight angle AOC into two unequal angles, these two angles will still make up the straight angle, or two right angles. This is surely axiomatic. If we accept the definition of a straight angle, a formal proof of this proposition is unnecessary, and any attempt to give one simply confuses the student. The same is true of the 14th proposition and even of the 15th.

The 5th proposition is proved by superposition, a much simpler proof than Euclid's. This is immediately used to prove the 8th. Euclid built a very expensive piece of scaffolding in the 7th proposition to get at the 8th. The 8th is used to make an angle equal to a given angle, and this enables us to make two

triangles, having two sides and the contained angle of one, equal to two sides and the contained angle of another. The 4th is then proved in the old way by superposition. These proofs are not new, but their arrangement in a logical sequence is new.

You will notice that the text-book does not ask us to prove two triangles with given conditions, equal (*e.g.*, two triangles having two angles and one side of one triangle equal to two angles and the corresponding side of another triangle), until we are shown how these triangles may be constructed.

The next step in the arrangement is of very great importance. The 26th proposition is reduced to one case, and these three fundamental propositions are brought close together. This is made possible by Prof. Baker's method of dealing with parallel lines.

In the detailed syllables of geometry, for the University of Dublin, it says: "In the case of parallels they may be derived either from rotation or from Euclid's 12th axiom, or any equivalent form."

This has always been a most difficult subject to deal with. As a matter of fact, Euclid's propositions up to this point would apply to figures on a sphere, as well as to figures on a plane, but his method of dealing with parallel lines applies only to figures on a plane, hence the difficulty. Euclid proved that if a straight line cut two other straight lines which meet, the alternate angles would be unequal (Euclid 1. 16), but he did not and could not prove the converse, viz., "That if the alternate angles were unequal the lines would meet when produced."

Euclid also proved that if a straight line cut two other straight lines so as to make the alternate angles equal, these two lines would be parallel; but he did not prove the converse, viz., that if the lines were parallel the alternate angles would be equal. To prove this he had to assume axiom 12.

"If a straight line meet two straight lines so as to make the two interior angles on the same side of it, taken together, less than two right angles, these two straight lines, being continually produced, shall at length meet on that side on which are the angles, which are less than two right angles." The difficulty is also overcome by assuming Playfair's axiom: "If two straight lines cut one another they cannot both be parallel to the same straight line." Parallel lines are defined in the new text-book to be lines such as have the same direction, and if they have the same direction it is assumed as axiomatic that they each deviate,

by the same amount, from any other direction, and therefore will make equal angles with any other straight line which intersects them.

If we understand the meaning of "straight lines" and "parallel lines," this is a reasonable assumption to make. It is easier for students to realize its truth than for them to realize the truth of Euclid's 12th axiom, or even of Playfair's axiom. But this is a reasonable assumption, especially at the present time, because students are accustomed to draw parallel lines by making the angles of inclination to a common line equal.

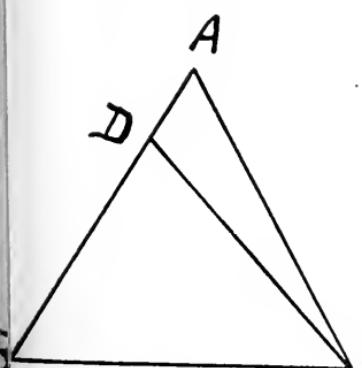
This enables us to see at once that the angles of a triangle are together equal to two right angles, and therefore if two angles of one triangle be equal to two angles of another triangle, then the third angle of one must be equal to the third angle of the other.

A greater number of deductions have been proved by a larger number of students in my class this year than by any other class I have ever had during their first year's course, and I attribute their success, in a large measure, to the fact that these three fundamental propositions, where the equality of triangles is proved, have been brought side by side and proved in a simple way.

So many propositions, too, depend on one or other of these propositions that it is of the very greatest importance to have them all proved at the very outset.

Another advantage in the development of the subject comes from avoiding, as far as possible, especially at the beginning of the subject, the indirect demonstration.

Euclid's 5th proposition has always been acknowledged to be a difficult one to beginners, but his 6th, though a short proposition, seems to be a difficult one even for advanced students.



If AB is supposed greater than AC, then DB is cut off equal to AC, and DC is joined. Then in the triangles DBC and ACB, DB is equal to AC, BC is equal to CB, angle DBC is equal to angle ACB. Therefore triangle DBC is equal to triangle ACB.

The conclusion is clearly wrong. Now we must go back to examine

all the data, part by part, and find out which part leads to the wrong conclusion. It is not in angle DBC equal to angle ACB, because these are given equal. It is not in BC equal to CB, because BC is the same straight line as CB. Therefore, it must be in the statement that DB is equal to AC. Therefore, AB cannot be greater than AC.

But the process of reasoning backward from effect to cause is always a difficult one to a large number of students.

The method of superposition is much easier, especially now, when students are accustomed to actually fitting one triangle upon another.

I am not prepared to say a great deal about the third book, which deals with ratio, proportion, and similar triangles, because my experience in teaching it along the lines of the new course has been too limited.

By dealing with commensurable magnitudes only the subject is very much simplified, and should be readily grasped, even by a junior class.

What gain the rest of the course will give us, by teaching it to the class of students we will be called upon to teach it to, is for the future to decide.

I do not anticipate any serious difficulties.

The introduction of symmetry will simplify the solution of many propositions.

In this new work by Prof. Baker we have all that is essential in the old, with many important propositions added, with a sequence as logical and proofs as rigid as Euclid's, and with a text-book little more than half the size of that which contains Euclid's elements.

When I began to teach geometry under the new curriculum I procured nearly all the works recommended by the Education Department bearing on the new course.

Although a discussion of these works may not be in exact accordance with the subject of the paper, it may not be out of place to point out some of the similarities and some of the differences between the development of the subject in these works and in that of our own text-book.

I shall confine myself to four works (all English). These works are by Baker & Bourne, Hall & Stevens, Godfrey & Siddons, and Barnard & Child.

I have been in communication with a number of the secondary schools in the Old Country, and find that these works I have mentioned are the ones used there and the ones I was recommended to get.

The similarities of all of these works with our text-book will be found in the fact that (1) all base the formal study of the subject on a practical course, and (2) all depart from Euclid, both in arrangement and in method of proof.

They all differ from our text-book (1) in using the "Hypothetical Construction," (2) in separating problems and theorems (*i.e.*, the arrangement of the logical sequence of the propositions is left entirely to the teacher or student), and (3) in the order in which the propositions come.

Baker & Bourne and Hall & Stevens both base their treatment of parallel lines on the old 16th proposition. Their arrangement of the propositions is very much alike.

Godfrey & Siddons and Barnard & Child develop their theory of parallel lines by rotation. Their arrangement is very much alike, but differing from Baker & Bourne and Hall & Stevens.

All these works of reference are excellent, but the latest of these four works, by Barnard & Child, is in my opinion the best. They have many beautiful constructions and many excellent examples.

What I felt most like objecting to in all of these works I have mentioned is the fact that the problems and theorems are separated. The whole logic of the subject is destroyed.

The following note is found in the regulations at the end of the Junior Leaving Course:

"NOTE.—In the formal deductive geometry modification of Euclid's treatment of the subject will be allowed, though not required, as follows:

"(a) The employment of the 'Hypothetical Construction.'

"(b) The free employment of the method of superposition, including the rotation of figures about an axis, or about a point in a plane.

"(c) A modification of Euclid's parallel postulate.

"(d) A treatment of ratio and proportion restricted to the case in which the compared magnitudes are commensurable."

The use of the "Hypothetical Construction" seems to me to destroy the logical sequence in very much the same way as the

separation of the problems from theorems does. But its use brings a great gain, which the other does not seem to do. For my own part I do not like it, but I am afraid it has come to stay, for the gain is great.

What I like best in the new text-book is the fact that the sequence is as logical and the proofs as rigid as Euclid's. Nothing is lost from an educational standpoint. But there has been a great gain. For one year, at least, has been saved, and that year the richest in the student's High School life.

COMMERCIAL SECTION.

AUDITING.

W. A. DOUGLAS, B.A., TORONTO.

The duties of an auditor may be two-fold. In a large office with a thoroughly equipped staff he may simply examine the various entries with their proper vouchers, and see that the balance sheets have been properly made out. But in an establishment where the staff is not so efficient, he may assist in the selection of the books and advise or superintend and assist the bookkeeper. In this way a firm may economize, where they do not feel that the business would warrant the employment of a skilled accountant.

In entering on an audit the auditor should attend to the following items:

1. Get a list of all the books in use in the office.
2. Draw up a scheme for a record of investigations.
3. Note carefully where each investigation ends, if there is the slightest suspicion that his check marks are being tampered with.

In one case which I examined I found a sum of money entered in a cash blotter, but which was never transferred to the regular cash book, and yet to all appearances two auditors had checked that entry as though it was all right. The only conclusion I could come to was that the cashier had made the check marks himself and thus deceived the auditors.

4. The auditor should see that the cash on hand as shown by the cash book corresponds with the cash in the till. A certain cashier showed for some months that he had a balance on hand so large that it is remarkable that the auditors did not make special enquiry. It was subsequently discovered that the balance in the cash box was very much less than the amount reported.

5. The auditor should be careful as to the balance on hand. There may be too many due bills, and there have been cases in which cheques, drawn and signed by the cashier, have been sub-

stituted for cash. It is a good rule to have all due bills initialled by the manager and, if the business will permit, to have all the balance placed in the bank on certain days in the month.

A certain municipal officer had collected for some years. His books had never been examined by the regular auditors. When at last an investigation was ordered, it was discovered that for a length of time he had been carrying a balance on hand consisting of cheques and due bills from some of the leading citizens.

One writer on this subject suggests the following rules for the regulation of the office :

1. Bank the cash daily, leaving the balance as small as possible.

2. Pay all accounts, as far as possible, in cheques.

3. Give receipts for all monies paid in. In some institutions it is insisted that these receipts should be examined by a second officer, who must initial the counterfoils.

4. The cash book must be balanced daily. The neglect of this wholesome rule, as many auditors know, has been the source of serious difficulty.

5. Secure vouchers for all payments. A good rule is now observed by some cashiers to have all these vouchers marked with the page and the number of the line on which each is entered in the cash book.

6. Balance cash book with the bank book at the end of each month and show by what items these two balances differ.

7. All ledgers should, if possible, be made self-balancing, and it is well to take off a trial balance each month.

8. All invoices should be initialled by the proper officers to the following particulars :

No.....	Inv. delivered to
Goods received by	
Prices O. K.	
Charge to Dept.	
Supt. Dept.	
Extension & Addition O. K.	
Duty, per cent. \$.....	
Charge & Fgt. \$.....	\$.....
Entered Mdse. Jol. Fol. by	
Paid by Voucher No.	

9. All accounts in arrears should be examined periodically.
10. There should be an efficient system of calculating and paying wages.

11. Where the system will permit, it is well to change the duties of the officers occasionally, and always so arrange the duties that some one officer can easily be substituted for another in case of necessity.

12. Every member of the staff should take a holiday every year. The business should be for the benefit of the man and not the man the slave of the business.

13. Everything should be done to interest every officer in the welfare of the institution. In the vast institutions of to-day, where the employees may be numbered by the thousands, there is great danger that the men may be looked on as merely so many parts of a great machine, devoid of all soul and sentiment. The development and the well-being of the men should be the first consideration of the enterprise.

Incoming Payments.—The proper guarding of incoming payments is the *bete noir* of the auditor. Here it is that temptation lies in the way of the weak and erring cashier, especially if it is an establishment where the cashier is also the ledger keeper. To keep the money he has received, to enter it in the ledger, but to omit it from the cash book, is the trap into which so many defaulters have fallen. In banks this is guarded against, where the cashier receives the money and the ledger keeper at once enters the amount of the deposit slip. Where all accounts are received by cheques it would be a bold venture for the cashier to appropriate one of these and hope to get it cashed without exciting suspicion. Where a receipt must be given with every payment and the counterfoil must be initialed by a second officer, this affords in some degree a check to temptation. Where statements are furnished every month, as is the custom of mercantile houses, there is little danger of the cashier going far astray without detection. But in the establishment where the one officer fills every function, much must be trusted to his honesty.

Company's Books.—The books required will depend much on the nature of the business. The requirements of a bank will differ much from those of a railroad company or a municipality.

1. There must be a minute book in which will be entered the

by-laws of the company, with a detailed statement of the proceedings of the meetings of the board of directors. Either in this book or some other authorized statement will be the list of officers, with their appointed salaries.

The auditor will have to refer to this occasionally to see that the amounts paid have been fully authorized. The revelations of the insurance companies show that this duty has not been faithfully carried out, or the auditors have taken it for granted that when certain payments were made by certain officials they were fully authorized to pass them as correct. It is in a case such as this that the auditor finds himself in a serious predicament. Should he raise any question as to the propriety of contributions to election funds when made by the president of a large corporation where would his situation be? Would he be appointed for another year? In cases of this kind an auditor appointed by the government might have the courage to call attention to such mal-appropriations; but for the auditor who owes his position to the very man whose conduct he must question, the trial is often too great. And as companies grow larger the temptation for the chief officer to misappropriate funds under the title of expenses grows greater, and at the same time the temptation of the auditor to pass over such accounts without question becomes also greater.

Preparations for the Auditor.—All entries should be posted in ink, all additions entered in ink, and a trial balance properly completed.

2. All vouchers should be arranged in order, if possible in the same order as in the cash book.

3. If possible all cash should be deposited in the bank on the closing of the books.

4. Complete inventory of stock, properly certified.

5. All bonds, deeds, and other securities ready for production. The auditor should see these for himself. One case is reported where the officer kept envelopes with dummies inside. He had abstracted the bonds and sold them.

6. List of overdue accounts with statement of provision for loss.

7. Balance sheets properly completed.

In the preparation of these sheets proper allowance should be made for all advance payments. Banks collect interest in

advance, so that in statements published by them a proper deduction should be made. Insurance companies also collect premiums in advance, so that similar allowance must be made. Newspapers collect subscriptions in advance, and the same rule must be observed.

In valuing securities puzzling questions often arise. As a rule mercantile establishments take the goods at cost price, but in the case of perishable or unseasonable goods, this rule would not apply. In a mercantile establishment, an insurance company, or a railroad, an important item is the value of the land held by the company. At what figure should it be entered in the balance sheet? Should it be carried in the books at the figure at which it was purchased or at the figure to which it has advanced through the growth of the city? This is a question which an auditor is sometimes called on to answer. As a rule, the figure should remain in the books at the purchase price, and the statement of profits be determined independent of the price at which land sells, when the company is not dealing in land. This is the wise rule, and yet there may be exceptional cases, when the value of the land must be considered, especially if a business is being wound up and a settlement made with partners. But for a company depending on its income for its profits to write up its real estate so as to make a better showing, is the resort to financial expedients, which may lead to serious consequences.

Capital Expenditure and Revenue Expenditure.—Here again the auditor will find himself face to face with difficulty. Our Financial Minister can figure out a surplus every year, if you will only allow him to charge enough to capital account. In the same way a railroad company, a telegraph or other company can show either a profit or a loss, according to the manner in which certain expenses are charged to capital or to current expense. Wages paid for current work should go to expense. Wages paid for permanent work or for work that is likely to retain its value for some years should be charged to capital, and then allowance made yearly for depreciation.

While thus the teacher may suggest to the student certain general principles that should govern in auditing, at the same time very much must depend on the experience and the good judgment of the auditor himself.

EDUCATION AS AFFECTED BY OUR SOCIAL CONDITIONS.

W. A. DOUGLAS, TORONTO.

The science of education is an experimental science, and like all experimental sciences is mostly progressive. We have by no means reached the ideal. If our attainments are greater than they were a century ago, another hundred years should see improvements vastly greater still.

The pupil is expected now to complete his school education between the years of seven and thirteen. In that time he acquires a certain amount of knowledge, necessarily very meagre, elementary, and crude. Just as his mind is beginning to gain some ability and power he is removed from the control of the school and in the vast majority of cases his systematic training in science, literature, mental culture or general knowledge comes to an abrupt termination. This is not an education, it is but the beginning thereof. One of the most serious drawbacks to the intellectual training of the youth consists in the fact that the school fails to develop a love of study and the habit of the student. In the overwhelming number of cases, so soon as the student leaves the school, he lays his books aside and gives up his spare hours, the hours laden with precious opportunities, to dissipation and frivolity, instead of devoting them to the noblest of all pursuits, the proper and highest development of the man.

His reading is fragmentary and frequently of no particular value. The proper training of the faculties so that they may be brought to their highest excellence is never thought of, and far more attention is given to useless amusements than to the problems which would store and train the mind for the important duties of life.

Why is it that the student must thus cease this intellectual training at such an early age, just as he is beginning to gain some intellectual power? The reason for this is social pressure. If the youth does not enter the shop or the office before he is sixteen, he will find himself seriously handicapped. His second education, his industrial education, must now begin; he must

learn to be a bread-winner. Any negligence of this second education will be fatal to his progress. There is no place in our industrial system for inefficiency. The inefficient man is the first to be dropped when work becomes slack, and the last to be taken on when good times revive. If he is ambitious to excel, if he is anxious for advancement, he must devote his utmost energies to make himself master of his trade or his profession.

There is great danger in this industrial training. The pursuit of the dollar may become the prime object of thought, the supreme purpose of the life. The man may become the slave to the dollar instead of the dollar being the servant of the man. The dollar should be the means to the man's elevation. It may become the burden of his degradation. Man was not made for the dollar, but the dollar for the man. Many a man has commenced in poverty. He has struggled valiantly, exercised all the virtues of temperance, patience, thrift and industry, and eventually has gained a fortune. But the pursuit has developed the passion for the game of acquisition. Instead of being a means to an end, namely, the elevation of the man, it becomes now his one overwhelming ambition. He continues his pursuit and doubles his fortune. Now it becomes an intoxication, if not a frenzy, simply to pile fortune on fortune in a mad passion for acquisition, without any consideration to the higher claims of the nobility of the true manhood that should be the supreme purpose of life.

This is no fancy picture of the imagination. We are in the hey-day of prosperity. Never before was the power for the production of wealth in any way comparable with that of to-day. But our prosperity is by no means a healthy growth, symmetrical and equable. It is a plethora at one end of society and a depletion at the other end. Instead of lifting up our civilization with some regard to equity, it is pouring excess into the coffers of the few and bringing degradation, depletion and hardship to the many.

The social pressure often crowds the lad out of the school into the factory or on the street. The child is not looked on as the charge given by God for the highest possible culture and training, as His child placed in our care to have the best possible surroundings, with all that an advanced civilization can afford. He is too often regarded merely as a pair of hands to be utilized

in the factory, ere yet his muscles are hard, so that he may swell the dividends of Dives and add glory to the banquets of a Luellus. More wealth is wasted in a few weeks on the follies and amusements of the rich than would equip our schools with the most improved appliances.

But the school system suffers in another important particular. Not only is the school life of the pupil quite too brief, but the career of the teacher in his profession is also far too brief. Is it not a deplorable fact that just as soon as the teacher has gained experience and skill, he leaves the teacher's task for some other profession? And if the teacher happens to be a lady, in a few years she abandons the teaching of other people's children, that she may have the blessed enjoyment of teaching her own. What inducement is there for a teacher to continue in his profession? Let a preacher gain the charge of a wealthy congregation, it would be regarded as scandalous to pay him less than three thousand dollars yearly. Let him go into law, and he would be looked on somewhat as a failure if he does not earn ten thousand a year. Let him go into land or stock speculation, to raise neither grain or goods, bread nor bricks, and we think nothing of him becoming a multimillionaire. But let a teacher possess the eloquence of a Demosthenes, the genius of a Newton, the knowledge of a Macaulay, and the public would regard him as extravagantly paid at a couple of thousand dollars a year. What man could ever have the courage to ask a girl to become his wife on the pittance offered in the average rural school?

To the man who enters the gamble of the stock market or the real estate exchange we think nothing of lavishing fortunes; but to the man who inspires a mind with truths the noblest, who develops a character with a love of knowledge and truth, to that men we offer an unworthy pittance, often given with grudging and grumbling. The chiselled marble, the dead machine of iron or steel, or a new application of electricity, is valued higher, in many cases enormously higher, than the power to influence a life or to shape a destiny. The intellectual, the mental, and the moral development of the race are placed in the market among the lowest priced of our treasures.

In the brevity of the school life of the pupil, and in the meagre inducement offered to the teacher, am I not correct in asserting that our educational system suffers most serious drawbacks. A millionaire founded a university. To the president of

that institution he paid the same remuneration that he gave to the man in charge of his ranch of fancy horses.

The man who is ambitious to win fame or fortune is not likely to remain long in the teaching profession. Our social pressure fills the teaching ranks largely with inexperienced apprentices.

We can have a successful educational system only when we have a just social system. And we can have a just social system only when we bring men into harmonious relationships.

The world has yet to recognize some all important truths. Let me call your attention to two great fundamental principles. What God furnished for humanity He furnished as a gift for the equal enjoyment of every one. What man earns from these opportunities he earns for himself. Thus there are two distinct kinds of property. The ignoring of this distinction is the source of much confusion. Prudhon said, Property is robbery. This statement is true or false, just as we interpret the word "property." If I make for myself a home, that home is mine. Let any man try to dispossess me, and I resent his action as robbery. I built it and therefore it is mine. From the forest that God gave I should be allowed to take enough timber to make myself a shelter, just as I have a right to appropriate the light of the sun or to breathe the atmosphere. But when I take my share of the timber, that gives me no right to charge my fellow-man for access to that forest. That is the gift of God, for every one equally. In the same way I have a right to the crop I raise, and I have a right to charge for that crop. But that gives me no right to charge my fellow man for the opportunity to live, move and have his being on the face of the earth.

These are the fundamental truths on which our civilization must be founded. It is the ignoring of these simple elementary ethical principles which puts men in wrong relationships, degrades our civilization and dooms the largest part of humanity to inevitable ignorance, barbarity, superstition and vice. Only on a foundation of justice can we base a civilization of success.

There will come a time when the school career will not end at adolescence. There will come a time when every man will have all the advantages that the best equipped institutions can afford. A knowledge of science will no longer be the privilege of the few. The wonders of the heavens, the glories revealed by telescope, spectroscope and microscope, the marvellous tools of chemical investigation, the profundities of philosophy, will be

open to all. The logical training whereby the man will develop the power of his mental faculties, so that the great problems of civilization, the care of the body, the care of the state, the care of the moral faculties will no longer be crushed down by ignorance and superstition.

To-day we are bound down beneath injustices inherited from times of barbarism and the problem of problems now is to learn how to bring about such adjustments that each will do his best for all and all will do their best for each.

The lesson has yet to be learned, What is harmonious adjustment and what is antagonistic relationship? As to these questions of the highest importance there are at the present time the most confused notions. When we look at the forces under which God leads men to act in their productive efforts, we see the operation of laws as beautiful as anything to be witnessed in the heavens above or on the earth beneath. Yonder the miner is burrowing in the bowels of the earth to bring forth its treasures in the greatest abundance; there is the farmer stirring up the soil to win from the earth the crops in their richest abundance; elsewhere is the mechanic adding device to device to multiply the power of his machinery. Everywhere and by every agency every one is striving to pour into the market his products in lavish abundance. Then with railroad and steamship, we use every means to render the exchange of this abundance for abundance as easy as possible. This is the trade against which some people utter their maledictions. But let them once try the experiment of stopping all trade, and they would never try the experiment again. God made man for trade just as naturally as He made him to breathe the air. Trade is the breath of life to society. Production, without exchange, is barbarism and starvation. Without trade civilization would disappear from the face of the earth.

But we have yet to learn what really constitutes trade, and what is its counterfeit, namely, tribute. The farmer stirs up the soil, puts in the seed, and behold the glory of the harvest. The mechanic gets the ore, fashions the machine. They exchange, and they are both richer. This is the kind of trade, benefit for benefit, service for service, on which depends the existence and development of our civilization. Now, note the contrast: The speculator gets hold of the land where population is centering. As the number of people increases the value of

that land advances, till it may rise to the height of millions of dollars to the acre. The speculator, without raising so much as a bushel of grain or a pound of goods in a life time, may claim as his the product of a hundred or a thousand farms every year. For all time he has industry in his power. To keep him rich year after year the farmer and the mechanic must toil and then surrender their product. This is not trade, it is tribute—the tribute that despoils society and makes our educational system a sad failure in comparison with its possibilities. We have learned how to adjust our mechanism, so that we can throw the voice across the continent: we have learned how to convey our messages across the width of the ocean; we have learned how to distinguish the fuel in the distant stars; but we have yet to learn how to secure to every child of God his rights to the gifts of God, and we have also to learn how to get the right man's crop into the right man's barn. When once we have accomplished this task, then our civilization will have a chance to run its free course and be glorified.

Our educational system must come far short of its possibilities until we have adjusted our social system. The antagonistic forces which lead one part of humanity to depress and despoil the other part must be corrected, so that the harmonious forces may have a chance to work out their beneficent results.

Do you ask how can this be accomplished? Then I call your attention to the mighty force we possess in our methods of taxation. Unfortunately in the adjusting of the burdens of society we have failed hitherto to distinguish between the rights of the individual and the rights of the community. Men as individuals can make the value of the house, of a quantity of goods and other labor products; but who is it makes the value of the best acre in Toronto two million dollars, of Chicago fifteen million dollars, and of New York twenty million dollars? No one can point out the individual who created that value. That is the product of the community.

When once we go to the right source for our taxes, then will the earth bring forth her increase, and then will men have a chance to gain a love for the higher and the highest pursuits instead of burrowing with the muck rake with the gaze fixed on the lower and the lowest pursuits, in pursuits unworthy of the dignity of manhood and the possibilities of the mind and the soul.

PUBLIC SCHOOL DEPARTMENT.

SECRETARY'S REPORT.

Last year's convention was noteworthy for the somewhat remarkable coincidence of plan and purpose, and this with no pre-arrangement among departments, except in the joint meetings of this and the Training Department.

The burden of the whole convention might be expressed as : "The Teaching Profession, Its Present Condition, and Plans for Improving the Conditions." Take a glance at the titles of some of the addresses :

In the General Association we find : "The Social Status of the Teacher," by Chancellor Burwash ; "The School and State," by J. S. Willison ; "The Ideal Teacher," by Rev. Canon Cody ; "A Pension Fund for Teachers," by R. A. Gray.

The question of salaries was dealt with by representatives of three departments, viz: Inspector Ballard and Trustee H. P. Kennedy both gave papers on "Salary Schedules," while Mr. Scott, of Toronto Normal School, read a valuable paper comparing the incomes of teachers with those of other callings.

The President of the Trustees' Department in his address dealt with the conditions and remuneration of teachers. F. C. Colbec, of High School Headmasters' Section, spoke on "The Scarcity of Teachers and the Remedy." "The Relations of Trustee and Teacher" was the subject of Trustee John H. Laughton's address. Mr. Spence, of this department, gave a lucid review of the workings of the National Union of Teachers of Great Britain. You will also remember such titles as these : "Qualifications of the Teacher," "Permanency in the Profession," "Retaining Male Teachers," etc.

It will well repay anyone who has not done so to read and compare the various papers on these topics, as found in the "Proceedings Report."

This year's Executive have felt that a heavy responsibility was laid upon them to carry out the plans inaugurated last year,

and to prepare a programme for this year's meeting that would provide for the carrying on of the work so well begun. Needless to say this entailed a good deal of work. Let me indicate very briefly some of the plans and purposes of the year:

To get into closer touch with the Local Associations was our first aim. To this end reply postcards were printed and sent out to every inspector in the province, asking for names of officials, membership, and other data of Associations in their inspectorates. About 80 cards were sent out, and about 70 replies came in, giving in nearly every case the information asked for.

I next wrote to every secretary whose name I had secured, directing his attention to the work of the P. S. Department, resolutions passed, papers read, committees' reports, etc., and asking them to bring these matters before their several Associations. In accordance with a resolution of this department last year, I also requested a contribution of \$2.00 toward the special work about to be undertaken in the interests of the teaching profession of the province. The response may be considered very satisfactory as an experiment. I had replies from about half the secretaries, and from the following eighteen associations the \$2.00 contribution asked : Brant, E. Bruce, Carleton, Frontenac, Hamilton, Kingston, Oxford, E. Peterboro', St. Thomas, Toronto, E. and W. Victoria (each), Waterloo Co., Wentworth, N. and S. Wellington (each), Windsor and Walkerville, S. York.

South York decided to print Mr. Scott's paper on "Teachers' Incomes," and distribute it among all the teachers of the inspectorate. Wentworth resolved to "put a copy of the O. E. A. Report into the hands of every teacher in the county."

The unusual number of inquiries received during the year regarding papers, reports, resolutions, etc., is a good indication of the interest that last year's convention aroused. Those who have watched the papers, too, cannot fail to have noticed the continued support our cause has received, both editorially and in the correspondence columns.

We had several important addresses printed in the *Canadian Teacher and Educational Monthly*, and these numbers were very frequently asked for.

After the fall meeting of the Board of Directors the programme for 1906 began to take shape, and arrangements were

made for several joint meetings. This required again much correspondence to secure the unusually large number of speakers to introduce topics of discussion. Finally, about a month ago, a letter was sent to every secretary of a local association requesting his co-operation in giving wide publicity to the 1906 convention, and directing attention to special features of the programme. They were at the same time supplied with "copy" for their local papers. It would be interesting to learn to what extent this material was utilized. In all about 600 communications, letters, postcards, etc., passed through my hands during the year. You will appreciate, therefore, the work required to prepare for this meeting, and will, perhaps, look with the greater leniency upon any faults of omission or commission you may have discovered in the programme or the year's work.

It is to be hoped that the day is not far distant when some very definite and practical results will be the outcome of these discussions on the vital questions concerning the welfare, not of the teaching body only, but of all the interlocking interests of home and school. And, if a plan can be agreed upon whereby this association can be brought into closer and more practical relationship with the local associations, so that plans formulated and work started, after careful consideration, may be carried to a successful end, a long step in the march of progress will have been taken. This may ultimately involve the formation of a "Teachers' Organization" or "Union," and the appointment of a permanent field secretary. We all await with interest the report of the committee elected to consider this very question. Their report will be before you shortly, and will come up for discussion on Wednesday morning.

In conclusion, a brief statement of expenditure for the year will be of interest:

For printing, manifolding, etc. (including printed stationery	\$14.15
Extra stationery and messengers .....	.85
Postage on letters, circulars, etc.	4.03
<hr/>	
Total	\$19.03

A matter that should receive the attention of the new Executive before this convention finally disperses is the formulation of plans for the carrying on of the campaign started last year. The local associations that contribute towards this cause will want to see definite results. Had we known just what to expect more could have been accomplished this year.

All of which is respectfully submitted,

R. A. WARD,

Secretary, P. S. Dept.

*HOW BEST MAY THE PUBLIC SCHOOL DEPARTMENT
OF THE O. E. A. AND THE LOCAL ASSOCIATIONS
CO-OPERATE IN THEIR WORK.*

(*A Synopsis of the Thoughts Presented in Ten Papers
Read before the Public School Department on
Thursday, April 19th, 1906.*)

CHARLES G. FRASER, TORONTO.

The work and aims of the Public School Department of the Ontario Educational Association and of the local teachers' associations throughout the province are identical. Each in its own sphere—the municipality, the county, or the province—is endeavoring to create a fraternal spirit among Public School teachers, to strengthen the bond that exists among them, to discuss topics of general interest to the members of the profession, and, by all legitimate means, to improve the conditions under which they labor; and the success that will attend their efforts will be dependent upon the measure of co-operation that exists between the central and the local associations. And for their perfect co-operation the following thoughts were suggested in ten five-minute papers read before the Public School Dept. of the O. E. A., on Thursday, April 19th, 1906:

The teachers of the province must become interested in the work of the provincial association, and in many cases it will be necessary for them to become informed of its very existence. For this step our Model School masters and Normal School teachers could be of great assistance. They could impress upon the minds of those entering the profession the fact that they owe a duty to their associations, both local and provincial, and that in the fulfilling of this duty they will enjoy a privilege. "Iron sharpeneth iron; so a man sharpeneth the countenance of his friend." The meeting together of those engaged in the same work, who have similar aims and hopes and aspirations, and who have the same difficulties to contend with, will always be a spiritual uplift, a stimulus to greater effort and more successful work.

For the purpose of interesting the teachers of the province in the work of the general association, the work being done there should be brought to the notice of every teacher. This could be done through the columns of the educational journals and the daily press. *The Canadian Teacher*, as is evidenced by the current numbers, has placed its columns at the disposal of the Association, to use as much space as it wishes. In this way we would reach practically all the teachers of the province, and should be a strong influence to arouse an interest in the work.

Again, the proceedings of the whole Association, with its seventeen sections and departments, is issued in book form. It is a volume of about 400 pages, and contains the minutes of each meeting and also all the important papers read. It is a register of the educational thought of the province, and no live teacher should be without it. It can be procured for the small sum of 25 cents a copy, which is less than cost. Some county associations supply a copy to each of their members; and if every association would follow this example we would have a most powerful influence at work, arousing the interest of the whole body of teachers.

If it were thought wise, the proceedings of the Public School Department could be published separately and distributed gratuitously to all the teachers. It would be inexpensive, and would add a factor to the influences at work.

Each local association should send at least three delegates to the meetings of the provincial association. Each delegate should serve for three consecutive years, and these delegates should be so elected that one would retire each year. In this way a delegate would have a chance to become acquainted with the members of the provincial association, would gain sufficient confidence to take part in the discussions, would acquire sufficient influence to impress his views upon the association, and would represent his local association to advantage. Besides, he would become so interested in the work of the association that he would become a permanent member, and year by year he would attend the meetings at his own expense, as many now do.

The work done by these delegates would be of prime importance. They would attend the meetings, watch the discussions closely, and take notes on those points of most interest to them. They could present and support those resolutions of their local

associations which are of provincial interest, and have them included in the resolutions of the department, to be submitted to the other county associations and to the Minister of Education. Then at some time previous to the meeting of their county institute they would meet together and formulate a report dealing with the points of most interest to their locality. By presenting a live account of the proceedings they would be a missionary host to arouse interest in the work.

Each county association should have an important period set apart for the consideration of the resolutions of the provincial association. They are the results of the deliberations of the educational parliament of the province, which is attended by men and women of ability and experience from all parts of the province where the best thought and opinion of all the local associations are focused—where an effort is being made to secure the enactment of measures tending to advance the educational interests of the province. And the time that is spent in the local association in discussing the resolutions of the general association will be among the most profitable periods of the meeting; and the support that can be lent to the central association will, in time, bear fruit in the creation of a public sentiment which will strengthen our cause.

Each county institute should have a Committee on Resolutions, whose duty it would be to discuss all questions affecting them in their particular locality. The results of these deliberations should be embodied in resolutions and submitted to the local association. The finding of the county institute should be forwarded to the Secretary of the Public School Department of the O. E. A., to be submitted to a strong, representative committee on resolutions to be unified and presented to the full meeting of the department on the second day of the association, and the findings then reached submitted to the Minister of Education for his approval and action thereon.

The Secretary of the Public School Department of the O. E. A. should be an important factor in the work of securing the co-operation of the local and central associations. He should be acquainted with the *personnel* of the teaching profession of the province. He should know the inspectors and the prominent teachers of each county. He should compile an educational directory of the province and have at his hand a list of the

officers of each county institute. He should have on file a copy of the programmes of past meetings of each association, and should have the announcement of the next meeting as soon as it is issued. He should know the time of the year at which each institute usually meets and should supply the local secretaries with the printed matter of his department—the resolutions, the reports of committees, the suggestions for effective work, the important lines which are being urged. He should ask for opinions, urge the discussion of certain topics, and invite suggestions for future work, thus keeping in touch with the secretary of each local association. He should not be changed every year.

The secretary of each local association will also be a factor of great importance in the work. He should keep the secretary of the central association furnished with a list of the officers of his association, the time at which his association usually meets, the date of the next meeting as soon as it is selected, and a copy of the programme as soon as it is issued. He should forward a copy of the resolutions passed which are of provincial interest. He should report the findings of the institute regarding the resolutions of the O. E. A., and the points urged for and against each. He should send an outline of the work accomplished, and in this way a constant and regular inter-communication will be kept up between the associations. And it is hoped that this position of secretary will not be handed round from year to year.

Lastly, the local associations should contribute to the funds of the central association. In carrying on such a campaign it will require funds. Last year each local association was asked to contribute two dollars towards the carrying on of the work in the Province. A goodly number responded promptly and cheerfully. The amount was not burdensome and was important in the work instituted, a work which we hope to prosecute with tact and vigor in the future. We hope that every county association in the province will see fit to contribute its quota to that fund this year. In the course of time we may have a well-informed, active field-secretary to assist in the work.

MEN OR WOMEN TEACHERS.

MISS AGNES C. PURVES, BRANTFORD.

" While we do not deprecate the work of the lady teachers by any means, yet, at the same time, it is regrettable that there are not more male teachers in our schools. A male teacher, especially if he is the right stamp of man, exerts an influence over the pupils of his class that makes for good citizenship and healthy morals which a teacher of the gentler sex cannot exert. The influence of the lady teacher supplements the influence of the male teacher, but to get the best results both influences are needed. Yet in the majority of the rural and village schools, and in three forms out of every four of the town and city Public Schools, we find lady teachers only. Thousands of our Public School pupils who never go further than the Public Schools, take their whole school course under lady teachers only. As far as actual book-learning is concerned they probably learn as much as those who have been favored with the co-educative influences of both men and women teachers. But it cannot be denied that they miss an important part of the character-training which is so essential a part of school life.

" We believe this is one of the vital weaknesses of our educational system, and one which the Educational Department should seek to remedy. The present tendency towards higher salaries in the teaching profession should do much along this line. The policy of the Department towards raising the standard of the profession and concurrently the salaries and the number of men who go into the profession, is well conceived, and should have good results in better all-round training of the youth of the province."

The foregoing paragraph is quoted from one of the Toronto papers, and is one of the many which have given rise to much comment and discussion. In part I agree strongly with the sentiments expressed therein. It is certainly a source of regret that so few men are to be found engaged in the teaching profession, and that many are there but to make it a stepping-stone to some other profession. The reason is doubtless, to some extent, the

inadequacy of the remuneration. There is another reason not often touched upon, namely, that so few men are to be found who are thoroughly fitted for such work. It is comparatively easy to find scholars; it is less easy to find men of sterling character in this or any other work of life; it is most difficult to find that combination of strong character and scholarship, with patience, tact and gentleness, which go to make up the ideal teacher. For what is it that really constitutes a good teacher? The four chief factors are: Scholarship, the ability to impart knowledge, controlling power; character. With any of these lacking you cannot have the ideal teacher. Let school boards endeavor strenuously to find such, and let them be paid to the full extent of the board's resources. By all means let our boys be taught love of country, loyalty to the Crown, indulgence in all manly sports, self-reliance on the play-ground, the loathing of vulgarity, of tale-bearing, of meanness. Let such be the thoughts that are inspired in our boys. Is it in any way less needful that our girls should be impressed with the contempt of vulgarity and meanness, with the spirit of honor, loyalty, self-reliance, than that the boys should be so trained? Have we not lost sight of this side of the question? Do we always consider whether it is the wisest thing to put the girls of our upper classes, just maturing into womanhood, as pupils of young men who are but a few years their seniors? Are there not amongst these, young men, who, having many sterling qualities and who transgress neither the school law nor the moral law, but who unwittingly break the unwritten law of chivalry, and thus lower the standard of all men in the opinion of these girls? Then, do not the future mothers of our nation need "*mens sana in corpore sano*," as well as its future fathers and defenders of the state? If these benefits can alone or best be conferred by men teachers, in spite of all the protests from the gentler sex, let us officer our schools from one end to the other with men and men only. Providing, however, that they be men who teach their pupils "to speak no slander, no, nor listen to it," who will strive first, before arithmetic, grammar, what not, to teach "high thought and gentle word, and courtesy, and the desire of the fame and love of truth, and all that makes a man."

I speak seriously. If a woman cannot or does not do these things, she has no place in our schools; nor has any man who

does not work with these aims first in view; and it is well to see that those in authority are enunciating this high standard.

The point where I differ, and where I cannot help thinking there must be some oversight or omission, is, that the superior success in installing these qualities is attributed to men teachers generally, on account of their force of character and strength of frame. Surely force or strength of character cannot be regarded as a peculiarly masculine attribute! Many of us, who can remember the intense and unyielding power for good of the influence of a mother, a wife, or a friend, may think differently; and, if strength of frame is to be regarded as a primary requisite in order to inspire pupils with more or less fear—which by some is thought to be the only successful means to make them obey their teachers and prepare their lessons—the natural inference is, that, in the near future, our teachers must be selected, like our Christmas turkey, for their size, and in strength of frame must form a rival corps to our police force; and in order to keep so formidable a body in reasonable subjection, inspectors and trustees must be chosen from the ranks of eminent pugilists! Have we forgotten that Julius Caesar was a little man? So was the Apostle Paul; so was Napoleon, and so is our own “Bobs.”

Apart from this, and to sum up in sober earnest, we want our children taught to love fair dealing and thorough workmanship, to despise idleness, cowardice, and lying; to have as much scholarship as their capacity and circumstances will allow; to fulfil, in brief, the great novelist’s definition of gentle breeding, “To be honest, to be gentle, to be generous, to be brave; and possessing these qualities, to exercise them in the most graceful outward manner.” Let the school boards regard as their most pressing duty the finding of men who can teach thus, and having found, I repeat, remunerate them to the best of their ability; but should any board in its search find an occasional woman working on these lines and successfully inspiring such ideals, for the sake of the love of fair play, which all wish inculcated, compensate her as fully for services rendered.

Again, as a woman, I object most seriously to having almost the entire burden of our future citizens laid upon woman. The Canadian child of to-day is suffering from want of paternal influence, and it is presumable the Almighty knew this influence was needed when he created fathers. At any rate, “male and

female created He them," and although the woman of to-day interprets this as giving her an equal right with the man to do the work of the world, neither he nor she should interpret it as giving her a superior right in this work for humanity. Still, it remains a deplorable truth that children do not have a desirable balance in their home training. In the majority of homes the fathers, immersed in business, leave the care of the growing families almost entirely to the mothers. How many boys grow to manhood almost deprived of an intimate acquaintance with their fathers! The time comes in the career of a boy when he wakes to a consciousness of his own individuality, of the fact that there is some dignity and importance accruing to himself personally. Then is the time when he turns to some older, wiser being of his own sex as a guide and model. How few at this critical time are fortunate enough to enjoy the intimate, confidential companionship of a wise, noble father! How serious if he cannot find in school the guidance lacking in the home! But so it is. We have in our towns and cities ten or twelve or twenty-roomed schools, with boys in all the grades from the kindergarten to the entrance grades, without a single male teacher, and, of course, without the desirable balance in school as well as in home training. For whilst the work of men and women proceeds harmoniously in our High Schools and Collegiate Institutes, men are being gradually excluded from our Public Schools, and are turning their attention to other lines of work. I cannot but regard this as a serious loss to the children, to the men, and to the women, who are bearing alone the real burden of this work, and I look with satisfaction upon the dawning tendency to return to the more wholesome and just distribution of the arduous toil, the grand opportunity, and the noble achievement involved in the field of education.

But will the granting of a higher rate of payment to men bring this about? Let us thoughtfully and fairly consider and see if this would be likely to establish the sought for change. A position in a school is vacant, say, and must be filled. If a man is appointed he gets \$500, but a woman can be had for \$400. The usual economic principles which govern most school boards will lead to the decision: "Let us get a woman." Instead of more men in the profession there will soon be none. It is but another phase of the "cheap labor" question. A woman

does not depart from her "proper sphere" with "malice afore-thought," out of some spiteful attempt to cheat an unprotected man out of his daily bread. A woman takes up teaching from exactly the same motives as a man does, namely, to earn a living for herself and for those who, by some turn of fortune's wheel, are dependent upon her. She takes her place on exactly the same plane as a man, has to qualify herself by the same examination tests, and to render service which is judged by the same examinations as his work. The question of sex enters into the problem not at all. Her food and clothing are not less expensive than the man's; houses or rooms are not rented to her at a reduction because she is a woman, and no law Salique exempts her from paying taxes on her real estate. Woman, if she can do the work, has a right to take her place side by side with man in the teaching profession as well as in every other wage-earning position. It is the work that should be looked at, not the accident of birth nor the whim of mysterious power which regulates sex; the work, not the nature of the garment, nor the length of hair which the worker wears, nor even the parchment from universities, nor the number of initials which individuals are empowered to attach to the rear of their names. It is perfectly true, that custom has established in too many cases, that in the open market the labor of women shall not be paid as highly as that of man. But the fact that individuals set up false standards is no reason for communities of individuals—who may generally be depended upon as doing the right thing—following their examples. The publishers in the time of George Eliot did not tell her they could pay only a two-third or half rate for her works, as compared with male novelists, because they were the work of a feminine hand and the imaginings of a feminine brain. Printers and public beheld her work was good, and were willing to pay the highest prices for it. As a matter of abstract justice, so it should be with all labor.

Again, many people think a man ought to be paid more than a woman because his responsibilities are greater. This may be the case sometimes, but it is far from being the general rule. There are many young women who are really the heads of households although they are not married. Their mothers, their younger brothers and sisters, look to them for support and education, and it will never be known how much noble work they

have done in this way and how much they are doing. They bear their responsibilities without a murmur. But, apart from this, is not the position a vicious and wholly untenable one? If a man is to be paid more and given a better position because he needs (?) more, one woman might justly demand more than another in the same place. Miss A— may have a mother and a rheumatic aunt dependent upon her, and should therefore get more than Miss B—, who supports but one little sister. This principle would make our schools charitable institutions.

No, salaries must be gauged and positions awarded not according to the desire, need, or sex of the applicant, but solely on merit and fitness for office. Teaching should be graded according to ability, and professional standing by the actual character of service rendered. It is not a matter of sex. Fellow teachers, men and women, let us look the matter fairly in the face. If women are compelled, and it is a matter of compulsion with most of us, to take lower salaries than men, it is only a question of time till all school boards will say that they are merely the custodians of the people's money, and if they get equally as good service from women as from men, they will be doing wrong to employ male teachers, and the latter will have to go; they will be ultimately driven out of the profession. We must stand together in this matter, for, "tell it not in Gath," we are narrow, we are lacking in *esprit de corps*, we must broaden, we must put aside the question of sex and individual, and remembering only that we are teachers, stand side by side, strong as a united body, men and women together. For who is going to look after this matter of teachers' salaries if we do not ourselves? A gentleman of wealth, whom I heard discuss the salary question, deplored the introduction of commercialism into education. He said, quite truly, too, that education was so great a matter of love that its laborers must be inspired with the missionary spirit and not degrade their nobler calling with the unworthier pursuit of gain. This gentleman is further quoted as saying: "I think you are wrong ever to expect a teacher to enjoy to any great degree the luxuries, or even all the conveniences, of life, or, above all, to expect the trustees of an institution to stand between a man and the too liberal expenditure of money. If teachers would stop whining about their pay, there would be more dignity in their calling." The task of bringing the

salaries to a good living is bound to fall chiefly on those teachers, men and women, who mean to stay in the ranks and teach. After a sufficiently long period of trying to make bricks without straw, enough of them will succeed in getting together to learn how to state their case effectively. Would that for one brief moment the whole public could be fused into one personality, that the teacher might frankly and honestly speak to him her mind. We should hear something in this fashion:

"O, taxpayer, you dear bugaboo, you bogie with which politicians try to frighten themselves, let us talk sense for two minutes. I am a teacher. You entrust to me your dearest belongings, and you ask that I shall make them noble men and women, no matter what ignoble traits you and your ancestors have put into them. I serve as mother to your boys and girls—fifty and sixty at a time. I have heard your wife declare that one nearly drives her crazy, but I have fifty all at once, and long hours at a stretch. Day after day and year after year I take these fifties and successive fifties and try to hold before them, unworthy as I may be, the praise and glory of a manly life, a clean, honest and generous life. I have washed their dirty little hands, bound up their cuts and scratches, sympathized with their childish griefs, loved the little rascals on the days I felt well, and tried not to hate them on the days they made me ill. Many years of daily work with little children has not made me great, taxpayer, I know that too well. I realize that my mind is dwarfed and petty, and the humorists in the papers, men whom I taught the rudiments of their skillful English, may easily hold up to ridicule me and my calling. You, taxpayer, with your society, your club, your outdoor sports, your business with men of large affairs, cannot know what it is to feel yourself stagnating in mind, losing attractiveness of face and person, in a work like this. I am a woman, taxpayer, and I cannot with complacency regard the change in me that comes from many years teaching boys.

"The wear and strain has been unnecessary. If I could have afforded some of the luxuries of life, flowers and beautiful things in the home; if I could have driven occasionally in a carriage; if I could have had well-made dresses, plenty of them (for I can do better work in better clothes), I would not bear my years of teaching as if they had been double the number.

An intelligent man like you is aware that successful teaching rests on happy and good-natured management. You should know that my temper is the main consideration. You cannot treat me shabbily without degrading the quality of the service I can render to your boy. You cannot snub me without making your own son a snob. You cannot count me as one of your charities without reducing your own children to be charity wards. Do you want them to have the best? You must then make me the best. It is no Chinese puzzle. There is no calculation in business more simple than this. Estimate what it would cost your own wife to live happily and well if you were gone. Why should you wish me, with my harder work, to live on less? It will be a good investment. Taxpayer, I render you high service, and you put enough supervisors over me to keep me from going to sleep. If I should stop my work this country, in one generation, would relapse into barbarism. Every babe begins his life a savage. You expect me to perform the greatest work in civilizing him. Who taught you, yourself, to read, to write, to figure, to think, and earn your chance to pay taxes, taxpayer? Do not be afraid of wasting your money upon me. Who am I? I am your daughter, your sister, your neighbor's girl. Each dollar that you pay me builds up the better interests of your town. People move here and pay rent when I work well, for they want their children to come to me. I engage my living rooms in your house. I pay my bills to you. You sell me groceries, clothes and books. Come, now, we have had enough of fault-finding. If you want me to do better, help me, do not hinder me."

But this is a digression, suggested by the relative salaries of men and women teachers—men's low, women's lower. My subject was: "Men or Women Teachers—Which?" The answer is: "Both, working harmoniously side by side; for both are needed." Let us all hope for the day when some one with millions will endow his gift on the flesh and blood and spirit of Public School teachers. There are preachers who minister five hours a day for five days a week unto such as may make the Kingdom of Heaven upon earth. There are physicians who attend the birth of all those higher qualities of mind and heart that make noble men and gentle women. These are they whom you call teachers.

*HOW THE WORLD OF NATURE OUTSIDE OF US MAY
BE MADE TO BUILD UP A WORLD OF MIND
WITHIN US.*

PROFESSOR E. M. KEIRSTEAD, LL.D., TORONTO.

The word nature, in this address, is used to include man, as well as what we call material nature.

Emerson is quoted as saying that "no man ever does anything well who does not come to it from a higher ground." This sentiment is accepted by our new education. We take it for granted that the school exists not merely to give a certain discipline, but also to give the pupil the quest for life and for knowledge as a means of life, that will help him to form within himself some model of the great world outside of him. We aim to build a world in each child by showing him how to build his own world. In reality each lives in a world of his own making. We say we live in a certain place, Toronto, for example. But we are thinking mainly of our bodies in such statements. We are, however, not bodies. We are spirits, and for the present have bodies. So we live in a world of spirit, of mind. We live in thoughts large or small, in emotions of joy or sorrow, or partly one and partly the other; in aspirations, in affections, out of which are the issues of life, in acts of will. Each makes his own universe very largely. So we try to give our pupils the building passion, the eternal quest for materials as yet unseen, and for power to put these materials together in new and palatial structures.

We are sure that nature in her various forms and the types of human thinking are to be understood and to be appropriated by the child, that the child is responsive to the thousand forms that meet him, if only we can awaken him to the larger boy that is outside of him. So shall we find a man being formed in the boy, and the boy will indeed be father of the man.

But this world of nature and of human life that we are to view as temples to which our young worshipper is to be led, are not one world at first, but a number of worlds, though they are ultimately seen to form parts of one stupendous whole. In the Father's house are many mansions.

Following the paths of leading psychologists and philosophers, let us consider a few of these worlds, with a view of starting our boy on the search for mind, for the real world outside of him.

I. THE WORLD OF THE SENSES.

It is said that the world in which we live is "a construction made by the mind in the interest of the heart and will." We must, therefore, teach our boy that mind is at the basis of the outside world as it is the basis of his own being. We are to show him, then, that in what we call the world of the senses, in the perceptions therein involved, we move in the sphere of mind. How can we do this? Is there really a basis of mind in what we perceive by the senses? Certainly there is.

At the Ontario Agricultural College I saw, a few weeks ago, on the blackboards of one lecture room in which they evidently teach various subjects, questions on "Hamlet," "Macbeth," "Lear," and "Othello," and also questions as to the proper way of making Cottage Pudding, Brown Betty, and Spanish Cream.

Now, you will say that in "Hamlet" and "Lear" you have a basis of mind, of course; that in these plays you have consecutive thinking, creative imagination, intense emotion, all the qualities of the highest drama of the world.

But in Brown Betty and Spanish Cream you will perhaps say that we have objects that appeal to the senses only, that they are composed of sensible elements and have no basis of mind.

But suppose we take away, one by one, the elements of which Brown Betty is composed, what have we left? Nothing. Brown Betty was made by putting ingredients together in a certain order; the order being destroyed Brown Betty ceases to be. Must we not say, then, that Brown Betty, as well as "Hamlet," is a work of the creative imagination? So with this building. It is composed of certain materials put together in a certain way. Order, mind, is the basis of the building. So is it with the earth, the planets, the entire universe. The underlying basis of mind gives it unity and for us real existence. The materials are only the expression of the thought.

If in this, or in any way, we can get our boy to see that the world in its vastness, complexity and power is mind, and can be

apprehended by him so that the essence of the whole is built up in him, that he is to be creator of his world, we shall give him a quest of knowledge that will be to him what a taste of blood is to the lion; there will be no stopping him until the world outside of him is formed within him. Take him through a dozen machine shops or fifty rooms in an art gallery, and he will carry them all away with him. By and by he will have his old mother nature's lineaments distinctly visible in him.

II. THE WORLD OF IMAGINATION.

Having seen that mind is the basis of the world the boy will easily see that there is in all an active mind, manifested in what we call force. Things are not passive; they act on one another. Indeed, we interpret nature largely in terms of force. Thus the universe is full of movement.

Soon the perception of the world of movement outside of him will stir up his constructing power. He catches from nature "tricks of the tools' true play." So he goes on building his "castles of dissolving sand." As out of his blocks he builds many houses so, we can show him, out of the materials given by sense perception he builds the successive mental houses in which he lives and out of which he passes to other, it may be, more stately mansions. This world of imagination is extensive in its range and all inclusive in its grasp. "It gives us the world of gods and goddesses of classic mythology, the world of poetry and romance, the world of art and fancy." The imagination bodies forth the forms of things unknown and the poet gives them a local habitation and a name.

This imagination is a normal part of our boy's mind and will always work. But of itself it is not sufficient to think as it ought to think. It needs a higher wisdom to guide it. Show the boy, therefore, that as the carpenter must build according to rule, so all construction in the mind or out of it must be according to law. So his active nature will not be suppressed, but guided, developed, strengthened. His dreaming will pass into serious effort at making something, at bringing something to pass.

We have been too much afraid of the imagination of the child, and sought to repress it when we ought to have guided it. Encourage the boy to build, and do not fear his "noble rage."

Teach the boys to make a new kind of box, to draw a map of a country of which they have never seen a map. Teach them to read books, but teach them also to write little books of their own. Only a limited number of students whom you send up to the university can write an essay that will show power of thinking. Let the boys see that nature is forever organizing new forms out of old materials and they, too, will seek to build as well as to analyze. So will they become builders of character, of true homes, of a new society, of a new nation.

Here you are teaching in a new country where you are not bound by custom that kills like an untimely frost. Let the freedom we enjoy not be used as an excuse for lawlessness but as a stimulus to the passion for building according to law and fact. So will your boy daily hear a voice like the command to Lazarus to come forth into a larger life out of the bondage of mental death.

III. THE WORLD OF SCIENCE.

Having delivered your boy from the tyranny of the senses, in part at least, and having also stirred him to constructive work different from the activities of an unbridled imagination, you can advance a step and bring him into the world of science, which comes, they say, by knowing the universal.

The search for the complete cause, or the plurality of causes, of the explosion of his gun will be material enough to explain to him the reason behind the operation of force. So the meaning of law gradually dawns upon him, and the universe will be seen to be governed, not by fleeting forms and fancies, but by orderly sequence. Gradually, too, the young man will see that this world of fixed law outside of him has its corresponding permanent element within himself. While he changes in some respects he still endures. The world outside awakens a world within him. Order comes into his mental chaos. "Earth changes, but thy soul and God stand sure." "All's love, yet all's law." The boy is a great feeder. He will devour the ideas of the great world of science; and so in showing him the world of science, of law and order, you break forever the reign of superstition over him. In showing him that "order is heaven's first law," you do something toward bringing him into the Kingdom of Heaven and toward bringing the Kingdom of Heaven into him.

IV. THE WORLD OF ART.

"The world of art is called the world of significant expression." "The practical arts arise from the felt need of food, shelter and raiment. The aim of the mechanic arts is utility, the satisfaction of felt physical or social needs. The aim of the fine arts is beauty, or the satisfaction of the æsthetic feelings." "In the broadest sense of the word, all business, commerce, manufacture, war, housekeeping, school teaching, as well as painting, architecture, poetry and music are forms of art. For in them all man forms in his imagination a picture of himself as enjoying, or helping others to enjoy, something which is not yet real, and apart from his efforts would never become real."

Of course there is great variety in the world of art, and each will find in these various forms largely what he is in himself. Thus the beauty that is the soul of the fine arts is not alien to the boy, but is already a part of himself, of his inheritance. Accordingly, to show him the forms of art in drawing or painting, verse making or music, is to show him that the outer world of beauty and harmony is to become for him a real inner world of glory and of peace. Give the boy this insight into art and you have given him a quest for nature's secrets and "the fairer forms that cultivation glories in are his."

V. THE WORLD OF PERSONS.

The worlds of which we have spoken have been worlds of material nature as suggesting the world of mind. We now come to the world of man. The boy lives not only in things, but in the world of persons.

A repeating air rifle seems complete in itself; but its true meaning is seen when you put a boy at the right end of it. The rifle gets its significance from the boy who uses it. The doll's significance is seen when it is in the arms of the little girl. In other words, all things get their significance from persons. The world itself gets its meaning only from its relation to man and, ultimately, from its relation to God. The world of persons is, therefore, the real world. To keep our boy always in the realm of nature would be like keeping him outside the walls of the king's palace instead of bringing him into the palace to see the

king himself. His real life is to be with persons. "The appreciation of others in terms of ourselves gives us the world of persons; and out of this world of persons and personal relations springs the world of institutions, the world of morality, and the world of religion."

Now, to recognize this world, to so manage the boy's relations to his fellows as to reveal the best in them, to so enlarge his experience as to enable him to see humanity through his associations with others is to bring him into humanity itself. He finds himself in finding others. "All men find their own in all men's good."

This may seem beyond the boy's powers; but we must teach him to do here what he should know always: "Keep but ever looking, whether with the body's eye or the mind's, and you will soon find something to look on! Has a man done wondering at women?—there's fellow men, dead and alive, to wonder at. Has he done wondering at men?—there's God to wonder at." If the boy's attitude can be made one of expectancy he will, like the women at the tomb, find the stone rolled away and angels of light where death and darkness reigned. The boy will respond to this teaching, and through the gateway of literature will enter the larger world of life. Literature reveals us to ourselves, and the boy will, as you hold the mirror of human nature up to him, see an image of his better, larger self and so come to his inheritance as a member of the great world of humanity.

VI. THE WORLD OF INSTITUTIONS.

"The world of persons expands our range of interest and sympathy and so gives us something of the spiritual freedom that we seek." But "the doctrine of extreme individualism needs to be bridged by the world of institutions. Through membership in institutions we become partakers in a common life which is neither mine nor thine, but in which mine and thine are ended."

The school itself as an institution can be made a door into the whole world of institutions. Ask the boy what he means by school, where the school is. He will probably point to the pupils. But you say to him you only see persons. Then he

learns that the school exists in his mind, that the world of institutions is an invisible world, but a very real world. The world of government, though he cannot see government, has the power of life and death. So the great ideas at the basis of institutions become dominant. He is now prepared for the world of morality and the world of religion.

"The school is established to make the child at home in this large world of men and things; the master of its forces, the minister of its laws, the possessor of its treasures, the sharer of its joys." "The good kindergarten is the connecting link between the happiness of the home and the glory of the great world, the true mediator between the human parent and the Heavenly Father—leading the child from the love of the one to love of the other." And "it is not of so much consequence what a boy knows when he leaves school as what he loves. What he loves he will feed on. His hunger will prompt his efforts to increase his store."

VII. THE WORLD OF MORALITY.

But the world is moral. At the bottom, as Carlyle would say, there is nothing but righteousness. And the boy is responsive to this ethical element of the world. He is at home in it. On his introduction to this world of morality the boy soon finds the view presented that the chief good is pleasure. But the theory is soon seen to have its difficulties. Then he is taught that duty is a higher law and must be the guide to pleasure. Then the world of conflict outside the boy has a similar world of conflict within him. To make him believe in righteousness and follow duty with a cheerful mind is to create for him a world indeed.

Here the teacher has a difficult task, but a magnificent opportunity. Perhaps we can find here some compensation for what many deplore, viz., that so few men make teaching their life work. For probably women can make duty more attractive to the pupil, and by their greater power to "conduct divinity" bring the children more fully and continuously under the sway of the highest motives. The essential thing, however, is to start the pupil on the way to the highest, most real world of moral life, for then he will follow till "he sees the deathless angel seated in the vacant tomb."

VIII. THE WORLD OF RELIGION.

If the child is not to be robbed of his birthright he must be brought into the world of religion. Let us not fear as we "enter into the cloud." Sometimes the doors into the banks where the riches are stored open more easily as the key is turned than will the doors of a delapidated cottage or of a hovel that grate on their rusty hinges.

So we may say the world of religion is so truly the world of the universal that it opens to the mind of the child, and the child responds when invited to enter that world. "Heaven lies about us in our infancy." "Of such is the Kingdom of Heaven." A great preacher has said: "However early you speak to your child about God, you find God has spoken to him before you."

Thus the intellectual demand for God is matched with the moral and spiritual need. In entering the world of religion your boy is "a child at home," and as all the separate worlds blend in this supreme world the boy will find these all formed in essence within him, to be his possession forever. So does he in gaining the whole world save his own soul.

*REPORT OF JOINT COMMITTEE RE ORGANIZATION
OF TEACHERS.*

The Committee has had several meetings, has secured as much information as it could on this subject, and, as a result, would beg to report as follows:—

We recommend the formation of an organization of the teachers of Ontario, to be known as "The Ontario Teachers' Union."

That the objects of this Union shall be:

1. To unite the teachers of the Province of Ontario in an association for mutual improvement and protection.
2. To provide a medium through which the teachers of the province may give effective expression to their collective opinions on all educational questions.
3. To provide a means whereby those who administer our educational affairs, both provincial and local, may secure information and advice based upon the experience of the associated teachers; and to further the co-operation of trustees and teachers in all educational interests.
4. To determine and control the qualifications for entering the teaching profession; and to endeavor, on the one hand, to inspire teachers with proper ideals and aims in their work; and, on the other hand, to form a public opinion in support of the best educational progress.
5. To secure the proper recognition of the teaching profession in all appointments to the higher positions in the educational service of the Province.
6. To secure the adoption of an equitable superannuation scheme for the teachers of the Province.
7. To secure the compilation of a comprehensive register of the teachers of the Province.
8. To afford advice in professional matters to individual members of the Union, and to give advice and assistance to them in legal cases of a professional nature.
9. To extend protection to any of its members who may be wrongfully treated; also to exact from them the proper fulfillment of their professional engagements.
10. To discipline any of its members found guilty of unprofessional conduct.

Respectfully submitted,

L. E. EMBREE,

Chairman

CHAS. G. FRASER,

Secretary

TRAINING DEPARTMENT.

THE FUNCTION OF THE EDUCATOR IN THE MAKING OF THE NATION.

T. B. KILPATRICK, LL.D.

My theme is "Education in its sociological aspect. What services are teachers rendering to the state?"

I. Culture of Mind.—Instruction, of course, is part of the business of education; but it must not be so abundant as to cram, and so deaden, the mind of the pupil. To have instruction there must be culture, including enlargement of mind, discipline of faculties, producing steadiness of attention, comprehensiveness of view, depth of insight, firm grasp of principles, together with facility in their application.

Obviously, such culture as this is of immense value to society, tending, as it does, to produce elevation of taste, refinement of feeling; to bring the various grades of society together, and to create a common social sentiment.

Those who are the agents of such culture are rendering priceless social service.

II. Development of Character.—Cleverness, business ability, and technical skill, divorced from character, would be almost pure evil, and would have no other effect than making villainy more subtle, ingenious and harmful. The swindler would replace the thief, the company promoters the highwayman. The ethical aim, therefore, must predominate in the heart of the teacher and in the conduct of education. The attainment of this aim will be sought in two ways: (a) indirectly, through the tone of the school and its system of rewards and punishments; (b) directly, through definite moral teaching. Of course no one can be made moral by lessons in school. Yet there is a sense in which the Socratic doctrine of the teachableness of virtue is true. Virtues may, through a series of lessons, be studied, defined, illustrated; and they may, by the teacher's personal life and character, be strongly emphasized and most impressively urged upon the conscience of the pupils. The teacher, in this aspect

of educational work, holds a high office. Men, who are gentlemen, pure, chivalrous, loyal; women, who are gentlewomen, refined in speech and manner, bearing about them the atmosphere of grace and peace, witnessing continually to the reality of the ideal: teachers such as these are rendering incalculable service to the state.

If hereafter the state is to have citizens who are brave, patriotic, honest, lovers of truth and knowledge, supporters of every good cause, it will owe them, in part at least, to the teachers of the Public Schools.

III. Training of Vocation.—The two aims, culture and utility, are not in reality incompatible. General education is obviously helpful to the special vocation. It ought, accordingly, to lead on to it. The primary school, the secondary school, the technical school, and the faculty of applied science in the university, ought to be regarded as members of one organic whole. The case for education, as means towards commercial success, is overwhelmingly strong. Germany presents a noted example of the success which has attended the application of science to practical undertakings. In many trades Germany has far outstripped her rivals, because the chiefs of these industries have sought the services of men who have received a thorough scientific training. Moreover, education, as discipline of mind, and particularly as enlightenment with respect to economic facts and laws, is necessary for the production of certain classes of men who are indispensable under modern commercial conditions. Such are captains of industry and of commerce, together with leaders of the workingmen, in their efforts for a due share in the profits of their toil. The industrial and social revolution which is surely impending can be carried through without catastrophe only by the wide diffusion of education. Those, accordingly, who are preparing men and women for their life's task deserve well of the state. Grants in aid of education ought to be given willingly, not as a charity or expensive luxury, but as the due price for a much needed result. Every dollar spent in maintaining and developing a sound and efficient system of education throughout the country is a wise and profitable investment.

IV. Deepening the Social Spirit.—The individualism of the early part of the nineteenth century has given way to a new con-

ception, which has come to prevail in economic and even in physical science. Not competition, but co-operation, is seen to be the condition of full and victorious life. The welfare of the individual and of society is seen to depend on mutual relations of service and helpfulness. Society is essentially an organism, the individuals and the classes of which it is composed are members "one of another," and can flourish only in so far as they are imbued with the social spirit and serve social ends. Education, therefore, must come under the dominance of the social motive. Its aim must be to produce individuals who are imbued with the social spirit, who have at least a general understanding of the principles upon which society is constructed and have an intelligent insight into the complex relations existing within the community. Such a motive in education will have a determining effect on educational method. Certain subjects will be taught with a new interest and from a fresh point of view. School management will be pursued on lines of self-government, self-discipline, self-direction.

Results of the highest social value may be expected from education thus conceived and carried out, *e.g.*, (a) vindication of authority, not from without but from within; (b) increase in stability, not by coercion, but by the willing and intelligent loyalty of all the citizens; (c) advance, by steady evolution, not by spasmodic agitation; (d) diminution of youthful crime. Canada has arrived at a critical moment in its history. Lawlessness, instability and violent revolution are not unreal dangers. All the resources of the community will be needed to repel these dangers, and among their resources none is so potent as the Public School. Between the state and anarchy stands the phalanx of teachers, a standing army of vastly greater value than that which it costs millions to equip with the muniments of war.

V. Preparation for Citizenship.—Patriotism, the love of liberty, and political sagacity, which form the leading qualities of good citizenship, are directly fostered by education. An illiterate voter is a menace to the state. If the vote is to be of value, it must be the result of an intelligent survey of conditions and a careful study of problems. The future voters, *i.e.*, the future rulers of Canada, are at the desks in the school-room.

How vast and far-reaching, therefore, is the influence of the teacher! Teachers hold high rank as makers of the nation and as builders of the empire.

Such high duties require high qualifications, intellectual, moral and spiritual. The fit discharge of such duties ought to receive high acknowledgment on the part of the state, in salary and status and public honor. The highest reward of all, however, will be found in the sense of a great vocation and in the humbling, yet uplifting, consciousness of partnership with God Himself.

PHYSICAL TRAINING, ITS VALUE AND NECESSITY.

W. E. GROVES, TORONTO.

It is with considerable trepidation I approach the subject I have chosen for the chairman's annual address. For a long while it has been borne in upon me that from year to year we seem to be doing not nearly enough for the physical development of the pupils committed to our care. Yet, when I came to consider the propriety of offering such as the topic of my address, it seemed to me that I should be repeating to you only such commonplaces as everyone is perfectly familiar with, and upon which almost everyone here is entitled to speak with quite as much authority as I. Still, gentlemen, my interest in the subject will not permit me to overlook the opportunity I here have of speaking my mind to the men of all men who have the possibility of impressing upon prospective teachers the importance of this department of education, and of showing how the precepts they advance may be realized in practice.

"The sound mind in the sound body" adage has been presented to us and to our students so frequently and, if I may say it, so flippantly, that it takes rank with that hoary-headed aphorism, "Virtue is its own reward," but for which men immediately proceed to show their admiration by hustling for a reward in which it would be difficult to discern any relationship to virtue. It is good enough to serve as a text for a sermonette, or for a piety dissertation, but so soon as the instant is served it drops out of life's practice, and remains with the moths till ready again for dress parade. So much for introduction. I shall now proceed to the topic in hand.

Physical training may be defined as the regulated practice of muscular exercises under conditions that tend to promote the health of the organism and to develop and discipline its motor powers. These exercises may be employed for mere recreation, their aim may be hygienic, or the aim may be educative, or it may be remedial. But, various as are the forms or the purposes of physical exercises, their nature and effects are essentially alike, for when reduced to their simplest terms they consist of muscular contractions.

Now, viewing our bodies as complicated mechanical organisms for the transformation of potential energy into free or active energy, it behooves us to see that this machine is as perfect as possible at the beginning of its career, and that it be maintained in a condition of the highest efficiency during the period of its lifetime.

Our organisms may be classed as the generic, those that have to do with the welfare of the body as a whole, and the subsidiary, or special. The first of these requires a constant supply of energy-yielding material for its upbuilding and maintenance, *i.e.*, it must have food. The whole circle of activities involved in blood producing, in blood circulating, and in blood cleansing, have their seat in the digestive and circulatory systems. In the second place, all the organs, whether generic or special, require to be controlled or regulated as to the ways they expend their active energy. Hence the creation and control of active energy is provided for by a generic organism having both transmissive and regulative functions, and which we term the nervous system. Huxley likens our bodies to an army, of which each cell is a soldier, an organ a brigade, the central nervous system the headquarters and field telegraph, the alimentary and circulatory systems the commissariat.

Bewildering as appears the complexity of our bodily organism we may reduce its multifarious activities to a few leading kinds if we classify its tissues according to their dominant functions. First, we have those nervous and muscular tissues by means of which we are brought into contact with the external world, and by means of which the external world is affected by us. All other tissues, except the purely supportive and reproductive tissues, may be grouped as tissues of nutrition and tissues of excretion, in other words, (1) "tissues employed in so preparing the raw food and so bringing it to the nervous and muscular tissues that they may build it into their own substance with the least trouble, and (2) tissues employed in receiving the waste materials which arise in muscular and nervous tissue, and preparing them for rapid and easy ejection from the body." Thus we see that the controlling and executive neuro-muscular system has two sets of servants that play the part of purveyors and scavengers respectively. On the adequately balanced working of these servants the health or smooth working of the system depends.

For this body of teachers it is not necessary to detail the connection between muscular activity and exciting nerve cause, but I shall ask you to think for just one moment that the bond between these conjoined mechanisms is so intimate and so abiding that, so far as our voluntary movements are concerned, the separate, disjoined action of either is hardly conceivable.

The primary element which is common to all forms of physical training is neuro-muscular exercise. The effects of exercise upon a single muscle are chiefly two. On the one hand there results a general condition, based upon improved nutrition, of heightened health in the neuro-muscular machine, which state of health is signalized by the presence of a normal degree of size, strength, and working power in its structure; and, on the other hand, there results a more complex and special effect, viz., the acquisition or organization by its neural parts of advantageous habits in respect to the origination, transmission and modification of stimuli.

Exercise involving many muscles or large groups of them (leaving actual movements out of consideration) results in the increased circulation and ventilation of the blood. The effect of exercise upon digestion, assimilation and excretion, though highly important, is an indirect one, those processes being modified by the volume, distribution and quality of the general blood stream.

Muscular action is accompanied by, and owes its origin to, mental activity. Hence the normal growth and development of the motor areas of the brain are conditioned in large measure on the normal exercise of the muscles whose movements are represented by them. Not the least important among the results of physical training or muscular activity is the development of the neural mechanisms which represent our bodily movements.

This fact is quite apparent in the animal world, though less conspicuously evident in man. Those animals using the greatest number of neuro-muscular centres and including the greatest use of these centres, stand highest in the scale of animal intelligence. The parrot, which uses its beak and neck for purposes other than mere food conveyors, is not to be considered in the same class with the stupid goose or strutting turkey-cock. The monkey tribe, which use not only the hands and feet for clinging and climbing, but also the tail, has not alone developed a

new set of muscles, but we find a degree of intelligence closely approaching the human, a society spirit and a social responsibility causing the individual to sink the personal good in the welfare of the community. They combine to secure passage of a stream. The danger-call or battle signal rallies the tribe to the centre of danger, and fearlessly the members hurl themselves upon the common enemy. The elephant need only be mentioned in passing to further buttress the assertion that the mental development is largely conditioned upon the extent of the corresponding muscular activity, and the number of muscular centres involved.

In the evolution of the race and of the individual the more general organs and functions are formed and developed earlier than the more special ones. To those parts of the nervous system in man which are formed first, and are practically completed and fully organized at birth, the name "fundamental" has been given, while to those parts that are rudimentary at birth and comparatively late in development the term "accessory" is applied.

Accessory centres, being the latest formed and the most highly specialized, are less stable in their constitution and, therefore, more liable than the fundamental centres to become disordered and diseased. As is well known, in cases of progressive paralysis the accessory centres yield first and most readily, *e.g.*, disordered speech precedes disordered breathing or disordered locomotion. A drunk man can sustain his seat on the back of his horse long after he has lost the power to control him by word of mouth or skill of hand.

Any system of physical training which does not provide first of all and continuously for the exercise and training of the coarse adjustment of the body, *i.e.*, of the fundamental and central neuro-muscular mechanisms, must fail to secure normal growth of the body or natural and orderly development of its motor powers. Exercises which appeal to the muscles of the trunk and limbs, because they do exert a direct influence upon the heart, lungs and skin, and upon the fundamental portions of the nervous system, constitute the core, or rather the bulk, of every rational and well approved system of physical training.

To this point the paper has been largely theory, and a matter of theory, too, which I feel conscious that I have not made clear

to others. I shall trust more fully to your grasp of the situation than to the clearness of my explanation. This I hope to have in some measure made clear, that neural development is largely conditioned upon physical development, that in directly seeking bodily development we are indirectly, but none the less surely, securing mental development; that while, as teachers, we regard our field as intellectual, still, in order to secure the highest mental development, we must look to physical development as a highly important agency; that, too, in devising a system of bodily exercises for the development of a physical organism we must see that the exercises chosen must be such as affect the great fundamental centres and not those of merely peripheral influence.

Let me now give some examples which I trust will show the truth of what as theory I have tried to establish. Dr. E. Sequin, the elder, relates his experience with an idiot boy of eight, rendered idiotic through infantile convulsions: "The hand of R. was small; no power, no skill, only automatic movements, mainly from the wrist. To make R.'s hand act on command was at first quite out of the question. He could not put it or the fingers in any given attitude. The teacher began the training of the hand from the shoulder by movements which, starting from the elevators of the arms, would involve necessarily the muscles of the hand and the arm. Then gradually the movements were extended to involved movements and motor activities further and further from the spinal centre. Thus the limb in training not only became capable of a few willed movements of totality, later applicable to a great number of operations and convertible into smaller movements of the farther extremities, but the mind, being drilled to be carried over regions previously ruled by automatism alone, extended its dominion to the most sensitive groups of delicate and contractile tissues at the periphery.

"To illustrate the difference of the ability of the hand during these forms of training according to the origin of the impulse, he noticed the freedom of the hand of R. when driving nails into a board with a hammer—a movement of the arm and wrist—as against the sliding of a pin he held with the intention of piercing holes in a paper, with but rare success, a movement confined to the last phalanges of two fingers."

During the first year no attempt was made to teach the ordin-

ary school subjects, but the lad had learned to help himself, to amuse himself, not to slap his friends. His eye was trained to recognize the typical forms, at first in substance, then in shade and color, and finally to cut the same out of paper.

The following year much attention was given to correlating eye and hand, with the result that the training began with the training of the hand and arm, enabled R. to be placed in a school for ordinary children, and to do well with his lessons.

In the same direction, but on a larger scale, was what is known as the Elmira experiment. It was carried out at the State Reformatory, Elmira, N.Y. The reformatory is distinctively a school, as scarcely to be counted among prisons as that term is ordinarily understood. It is reserved for male offenders between sixteen and thirty years of age serving a first sentence. All sentences are indeterminate—a prisoner may be detained for the maximum time provided by law for the offence of which he has been convicted, but it is possible for a prisoner to obtain an absolute release in less than two years. To accomplish this is not an easy thing, for the conditions of release (which is on parole for at least six months in the first instance) are: The prisoner shall earn perfect marks for twelve consecutive months in "conduct," "labor," and "school," and that he must gain the confidence of the general superintendent and managers, and that upon his release some definite, permanent, suitable employment shall be found for him either by his friends or the management of the reformatory. If a paroled prisoner gives satisfaction to his employer and the authorities of the reformatory throughout the term of his parole, he becomes entitled to an absolute release and the restoration of citizenship. Nine is a perfect mark for a month. Failure to earn a 3 in conduct, labor, or school work, respectively, entails a new start, as no one who has not twelve consecutive 9's to his credit is admitted to parole.

In June, 1886, at the suggestion of the superintendent, Dr. Wey, the physician of the institution, formed an experimental class in physical culture. The class was composed of dullards who had made no appreciable progress in their school work, and were correspondingly deficient in shop work. The object of forming such a class was to try to ascertain if it were not possible through the agency of frequent baths, massage and daily calisthenics, to secure a partial awakening and stimulation of

dormant mental power. Increased mental activity rather than increased muscular development was the test by which the success or failure of the experiment was to be judged. Eleven men, ranging from 19 to 29 years, were subjected to the treatment. They were released from shop work, but were given careful instruction in school. The class was required each day to practice two hours or more in "setting-up" exercises and dumb-bell drills, and each man was given three baths a week with bath massage. The class were not weak, sickly, puny specimens, nor were they what might be styled defectives; they were simply coarse, stupid, insensitive, unambitious dullards, imprisoned for felony.

The experiment was continued for five months. The men improved in mental power and self-control, as well as in physique and carriage. The average marking of the class for the five months rose to 74.15 per cent. as against 45.25 per cent. for the preceding period of five months. To show that the results were not transitory, the average for the period of five months following the experiment stood at 76 per cent., as opposed to 45.25 per cent. for the five months preceding the experiment.

So satisfactory were the results in the opinion of the officials of the reformatory and of the state officials, that in 1890 the Legislature of New York appropriated funds for the equipment of a suitable gymnasium and bath house. The gymnasium became a place of preparation for the school of trades and letters for certain classes of defectives.

To come more nearly to the immediate wants of the school-room, permit me to say that the conditions imposed upon the children of our schools are wholly artificial. To meet the needs of our complex and highly organized society children while yet in their infancy are called upon to learn the rudiments of an education which custom has decreed as necessary for success in industrial life and for success in social intercourse with our fellows. The young of the animal creation require no such schooling, as their society being founded upon a simpler plan does not require the training which we designate as culture. On the side of gaining a livelihood, the activities are early and vigorously called into play. In the struggle against the forces of nature, against foes not of his own kind, and against the selfishness of his own kindred, the young animal secures a perfec-

tion of physical development out of all possibility for the young of the human species. If our children were required to follow the chase, to fish, to trap, to navigate our lakes and rivers, working their passage with the paddle instead of luxuriously lounging on the deck of the pleasure steamer; if instead of passing their days in close and poorly ventilated school-rooms and their sleeping hours with storm-protected windows, if instead of these artificial conditions our children roamed the woods, drank in the life-giving ozone of God's free atmosphere; if instead of the conventional dress of youth and maiden our children dressed as did the primitive man, there would be no demand, as there would be no necessity, for gymnasia and courses of artificial instruction to correct the resultant evils of our artificial life and society.

The further we depart from the life of the early settlers of this country the more serious becomes the demand for the restoration to our children of the birthright of which our modern conditions have deprived them. As I recall the early life of a boy on a bush farm, there was little need for exercise beyond that imposed upon him in the performance of the multifarious duties pertaining to the life he led. Messages innumerable had to be carried, and there was seldom question raised as to his inclinations or feelings in the matter. It was a case of "Go," and he went. The duties of the byre and the barn were neither few in number nor light in quantity. The preparation of wood, the laying in of the supply ready for the old "King No. 9" stove, the water to be carried in, the bringing home the cows, the looking up the sheep flock, to be sure none had gone astray, the picking roots in the new clearing lot, the branding in the summer fallow, were only a few of many duties that fell upon the shoulders of a country lad in the early days upon the farm. In a way unknown to the city-bred youth the seventh day was a holy-day, a day of rest, when he gladly ceased from labor and laid aside the toil of one week for the recuperation necessary before entering upon the round of another. Yet amidst it all the boy found time to steal to the grand old woods where the wind-blown trees made music sweeter to his ear than the grandest organ, for the notes went to his heart; it breathed the essence of his life; he needed none to interpret the symphonies of the gentle summer day, the sweetly sad

nocturnes as fell the stilly night, or to interpret the martial climaxes as the storm king rode on the wings of the blast.

In our larger towns and cities properties have become small owing to the expense attendant upon large holdings, thus the boy is freed from his share of the labor necessary for their tillage. The conveniences of the fuel companies and the municipal furnishing of the water supply free the boy from his duties in those directions, so that it seems difficult to find suitable employment for the energies of an ordinarily healthy boy.

In larger centres of population the need of open spaces for play and exercise should be provided at the expense of the municipality. Fortunately the public is being aroused to a sense of its responsibility in this matter, and most cities are providing play spaces where "Keep off the Grass" is conspicuous by its absence. To me it was a revelation last summer to see such a space one Saturday afternoon in Brooklyn. A large field in excellent shape was occupied by hundreds of men and youths intent upon their games. There were games of cricket, baseball, tennis, bowling, croquet, etc., all in progress at the same moment, none seeming to interfere with the other. The land was owned by the corporation and cared for under the direction of its park commission. On a later occasion, while driving through Central Park, New York, I found the same condition of affairs, with the same happy, smooth-running arrangements.

Germany is doing even better than New York, for in Berlin they have one public playground of forty acres intended solely for the use of small children. The space is planted round with a quadruple row of cottonwood trees, under which are benches for parents or nurses who attend the children, and on which the tired children may rest from their play. Sand gardens are another feature of German foresight. In corners of the parks are placed several loads of clean sand, renewed at frequent intervals. Occasionally the sand is placed in raised trays where the children may stand and fashion forms as their fancy dictates.

In Munich there is a minimum playground space requirement for each pupil, this amount being fixed at 25 square feet per pupil. In Berlin space in the parks is allotted to the various schools, usually three schools being assigned to the same space for two afternoons each per week.

Germany has sent commissions to England to study the Eng-

lish systems of athletics, especially in connection with the great Public Schools and the universities.

Scottish statistics show us that while men from the rural districts average 5 ft. 10 $\frac{1}{2}$ in. in height, in cities the average is 5 ft. 8 in.; criminals rise to only 5 ft. 6 in., while idiots average less than 5 ft. 5 in., seeming to show a close connection between the well set-up, well nourished, well developed adult and his efficiency morally and intellectually, as contrasted with the dwarfed body and dwarfed intellect of the idiot.

Let me further add, that only a few days ago while speaking with a gentleman prominent educationally upon this topic, he gave me the following statement, which he assured me was reliable, though he could not give the authority. The average child, he said, had eight physical defects, five growth defects, and three motor; the truants averaged twelve physical defects; while the weak-minded averaged sixteen physical defects. If we can accept this statement as thoroughly assured, there seems to be a further connection between bodily development, or the lack of the same, and mental and moral deterioration.

We hear the further assertion made that three generations of urban life is sufficient to cause the extinction of a healthy family, provided the stamina is not renewed by an infusion of good, fresh blood from the rural districts. This can be accounted for only through the changed conditions of life. Moses, with the eye of the seer, may have had our modern conditions in mind when he warned the wandering flock-and-herd-tending Israelites against the wrath of God visited upon the children of disobedient fathers unto the third and fourth generation.

As leaders of thought, I feel that we teachers should take the lead in calling for what is necessary for the welfare of the children. Municipal councils will not go further than public opinion drives. Only occasionally do we find a great leader who goes out in advance of public clamor and assumes the responsibility for his deed, being willing to be judged by the work of his hands. Where one man will do that there are hundreds who hold back on one pretext or another until the imperious voice of public opinion demands the performance of a specific work, and threatens with its displeasure him who lags behind.

My paper has already got quite beyond the limits of what I had originally intended, so I shall perforce have to conclude, but before closing let me briefly review. I have tried, however

imperfectly, to revive in your minds the close connection between doing and thinking as an essential for an all-round symmetrical development, both of body and mind; that the movements of the great fundamental centres of neuro-muscular activity most strongly affect both bodily and mental development; that exercises which affect only peripheral areas have not the same value as those affecting the great central muscular and nervous organisms; I have endeavored, by reference to Dr. Sequin's report of R., the idiot boy, to show that much may be done mentally for the most hopeless defectives by a well thought out course of physical training persistently followed; the Elmira experiment shows what may be done for those not so defective, when their needs are studied and the remedies applied; enlightened nations like Germany are recognizing that their educational system falls short in failing to provide convenient spaces for sports and games, and are copying the English and Americans in this regard; public opinion is moving in the same direction in the providing of municipal play-grounds; Scotch statistics show the rapid deterioration in physique when men are cut off from their wonted activities by being herded in great centres of population; and, lastly, we may infer that no small proportion of our youthful criminals are recruited from those who are laboring under a greater than the average share of physical defects.

May I hope that the members will give this subject a thorough discussion. If the conclusions are not logical, show wherein they are weak; but if correct, then let us as a body do the duty that lies at our hand.

Should it meet with the approval of this department, I should like the whole question of physical training referred to a select committee, which committee shall report to this department such a course of physical training as may reasonably be expected to be realized in any Public School. Then, if this department thought wise, such course could be recommended to the consideration of the Honorable the Minister of Education for incorporation in the course of study, as is the case with physical training in the English code.

Gentlemen, I thank you for the courteous hearing you have given me, and I take this opportunity of thanking you for the honor you did me in electing me last year to the chairmanship of this department.

PSYCHOLOGY OF SPELLING.

T. A. REID, OWEN SOUND.

The subject named on the programme as my subject for this morning, though of my own choosing, was not chosen because I felt I had a message or anything really new or valuable to present. I have been pursuing for a few years somewhat intermittently some studies of children and experiments in connection with this subject; and it may be that I had a thought that accepting the task now before me would help me to evolve something useful to myself at least; or it may be that my presence before you at this moment is my protest to an inexcusable omission in the recent second edition of a well-known book on "Methods in Teaching," which, having never a word on spelling, would seem to indicate that this subject defied pedagogical treatment, was beneath consideration, or could find no one to stand as sponsor for it.

Though the subject and the name are of my own choosing, I must say at once that the latter may be the last one in the world I should have taken. I shall not be alone in my method of treatment, however, if after taking a text I go far afield from my text.

Think of the difficulties that beset the teacher and the learner, of the time required to acquire the ready and accurate writing of the language we speak, of the importance attached to correct spelling, of the fashion, not now so pronounced as formerly, of regarding mistakes in spelling as an evidence of lack of culture; think in relation to the time spent in acquiring facility in spelling, the comparatively slight training value of the subject, and say if psychology or if child study, one or both, can throw any helpful light on methods in the teaching of spelling, how important it is that we should stand just where that light will serve us best.

We cannot question the utility of ready and accurate spelling, such that requires no hesitation or pause or considering. The advent of the typewriter has brought about an insistence for greater legibility in business correspondence as well as making

necessary increased speed in writing, and increased legibility and speed means greater care in correctly lettering the word, and no partial knowing of the word form. I may spell a word correctly when I pause, reflect, refer to its origin, write the two or three forms that suggest themselves to me, compare and decide which is the correct form, rhyme over letters suggested by verbal memory, or make a careful aural analysis of the word. But this partial knowing will not serve me well, for in addition to causing much delay there is always the likelihood that I may not pause to consider just when I should.

Whatever spelling was to us in the first stages of our learning, writing our thoughts would be a slow process indeed if we spelled every word from a vizualized image of the word, or by aural analysis or any other method I have suggested. And we cannot be said to have perfectly learned the production of the word until it goes down as a whole in obedience to our call without conscious spelling in the ordinary sense of the term, largely, if not wholly, through the motor memory of the hand. Certainly we write most of our words in this way, the hand having often traced their forms gets the habit of making the necessary kinks and turns for the production of the whole word. An occasional word gives us pause, and then another thing happens; we vizualize the word, analyze it phonetically, rhyme over the letters to the very tune it may be we used at the beginning, or recall some incident that helped to impress the word on our memory; we go, as it were, on a searching expedition.

There are many words which we have long written without pause, would cause us doubt if we were to fix attention on the order of the letters. Everyone has had the experience, I think, of some interference with the current of thought which disturbed attention to it and fixed it on the spelling of the next word, only to find that a familiar and frequently used word that hitherto offered no difficulty, now caused hesitation and uncertainty. Long before I sought the aid of psychology on this point I discovered by experience that it was a fairly safe guide to turn back in my writing to where I had used the word before without hesitation and accept that spelling, or in the light of that spelling to get the necessary assurance.

If asked to walk naturally not one of us could do it to order, for immediately we centre attention upon the thing we are asked

to do, and by the influence of that attention, not present in our natural walking, we produce a poor imitation. We spell as we walk, very largely without conscious attention. No other kind of spelling will serve as well. Not only would our writing be slow, but the current of thought would be much impeded unless we write it as it were automatically. The accurate spelling of a word in one's own composition in this subconscious way is the absolute test of our knowledge of the arrangement of its letters. We may spell a word orally with correctness; write it correctly in the phrase group from which it was learned; write it from dictation and yet fail to spell it accurately in our own composition. The word is acquired only when at all times, in one's own composition, it goes down readily and safely without conscious effort. If there is doubt about it at all there is no certainty of a safe decision.

How we take the first steps, how forms of words that once we had not, become so safely ours, opens up the question of the whole mystery of mind and more particularly of that faculty we call memory, which is not a part of mind but more than all of mind, for it gets outside what we ordinarily regard as mind, taking possession of the physical man as well. To discuss this at length would be to take the members of the Training Department over very familiar ground, and but one or two points in this connection very briefly.

The musician does not by an ordinary act of memory call up the order of the notes he is playing without music. We can see how slight is the attention he is giving to the ordering of his notes, from the fact that he can carry on a conversation and play his music with accuracy so far as his notes are concerned. In fact, his fingers can work out a strain of music that no effort of mind can cause to take form. Frequently the greater the effort of the mind to assist the motor memory of the hands, the more elusive will the lost strain prove. A child may fail absolutely to recall the words of a stanza once memorized, but when a word or two has been given, by making use of these he is able to produce all the others. One movement associated with the next gives suggestions to the hand or to the tongue.

Persons differ greatly in their image forming capacity; some excel in auditory images; some image best what they have visualized; some remember best what they do. It is quite possible

for one to read without the book a selection he has never attempted to memorize by reading from the imaged page. Many musicians vizualize their music and play from the imaged page, noting just where they are on the page when they turn to the next. I tried a class of very young first year pupils recently with a two line sentence, which I left before them only a few moments. Nearly all said they could tell me what had been written, but the first one who made the attempt did not tell what the chalk had told her, but said the words in correct order, making a decided adjustment of head and eyes to the left when she had given all of the first line. Further tests showed her vizualizing power quite marked. The most of the others imaged the thought and gave it readily, some with slight variations of language, showing that they imaged the thought through the words and gave them no further attention.

It is of some importance to know in what direction the image forming power of a child chiefly lies, whether motor images of the tongue, motor images of the hand, images of the eye, images of the ear, etc. Many a boy has been regarded as an incorrigible speller just because of the blundering stupidity of his teacher in failing to discover that the method of teaching, more frequently the no-method, did not take into consideration the memory type of the boy.

A word also about association of ideas. The two principal facts that serve as a basis of association are resemblance and contiguity, and the greater of these is that of contiguity, for it exists in all minds. In children it is very strong. Ignorant people and even imbeciles often excel in this form of association. By its means sensations or ideas that have been in the mind close together in time or space cohere in such a way that one calls up the other. It is on this principle of association by successive contiguity that the power so strong in children for memorizing or learning by rote depends. They learn rhymes readily, rhyme off the letters of a word to a tune sometimes it may be, obtaining thus another form of association. We know by experience, those of us who sing a little, that we may have the words of a song in connection with the tune and yet fail to write them or to speak them, and can bring them to mind only by humming or whistling or attempting to sing. If we bring together several different images in the mind at the time of the learning of a word, it

follows that we have greatly aided in impressing that word on the mind. We have, as it were, given it several attachments.

VIZUAL SPELLING.

While the eye can retain the image of a word, any attempt to teach through the eye alone would be absurd. What we often regard as vizual pictures of words are not these at all. Suppose I present two words together, "oranges" and "bananas," to people who do not know the written language. There is no certainty that they will be known apart. If I give you a new word of seven or eight letters, and you say "ah" or "oh" prolonged through the whole time the word is before you, there is little likelihood that you will reproduce the letters correctly. What you ordinarily do is to mentally or audibly vocalize the letters while you are looking at the word, hearing it pronounced, saying its letters, hearing its letters, seeing its letters, making three kinds of images, motor on the tongue, aural and vizual. A deaf mute who had learned the manual alphabet would have two classes of images at least, motor on the hands and vizual. If spelling were purely a vizual matter we could take an image of groups of letters such as "bgildn" or "lgdibrt" as readily as any other seven lettered word. I recently had, for the purpose of making a study, a number of words presented to some two hundred pupils, words such as they had frequently seen, but which had not been specially taught the pupils selected. Among the mistakes made in the familiar word "oranges," there were such spellings as "organges," "ongares," "orngres," "orgens," "ongrs," "organs," that all seem to be productions from vizual images. In connection with all vizual presentation of words it is well, of course, that a child should see no wrong forms. The old style of presenting misspelled exercises for correction was bad. The greater the dependence upon vizual memory the more likelihood is this course to produce confusion.

RELATION TO WRITING.

In passing let me say that deliberation in spelling interferes with freedom of pen movement, produces bad connecting lines between letters, irregular spacing, unevenness of hand, and frequently variation of style, that is, if the speller is good

enough to recognize his deficiency; the very poor spellers rush ahead with all sorts of assurance. Good, careful writing must assist the eye very greatly; must assist the hand as well—very different from the careless hand where letters are not formed at all. Of course, there is the artistic element which may exist in one's make-up, or excellent muscular or nerve control. But apart from these qualities that make the acquisition of spelling easy, other things being equal, you will find that careful writers among children will give the large percentage of good spellers.

READING AND SPELLING.

In our silent reading we are not only seeing words but subconsciously analyzing them and vocalizing them. Some readers in following the page listen as it were to a speaker; they image the delivery of the words, hearing the good articulation, clear enunciation and sounding voice. I think most of us who follow the report with interest of some public speaker's deliverance do this—at all events all of us who have the power of speech hear in our silent reading the vocalized words. In our silent reading, while the eye is following the words, we feel motor memory active in imaging their formation, a feeling a deaf mute who has never learned speech or position of the vocal organs does not experience as he reads, but will experience when he has learned speech. I take it for granted that he will feel, if he examines himself, that he is conscious of hand motorizing, accustomed as he is to make himself understood by manual signs, which serve him as vocal signs do us. Now what must be the accumulative effect of all these images in our reading on a knowledge of the letters of a word. It does not seem possible that it could be otherwise than that reading should greatly affect in the right direction our memory of the letter arrangements of a word—in fact, to recognize words at all through their letters we have gone a long way towards the acquisition of the spelling of these words, it is knowledge sufficient for many people.

I have studies of some hundreds of children, covering several years, which would seem to put beyond question, for me at least, that good readers are as a rule good spellers. By a good reader I mean the child who can give a good account of himself at sight reading, whose reading is marked by good articulation, clear

enunciation and accuracy in plain interpretation of the thought through the use of the exact words of the writer. This all stands for good seeing, good hearing, ready synthesizing of the sounds through the symbols, and all of them, in the word. It would be a matter for surprise, indeed, if the child could not spell well the language he can read in this way. Our pronunciation, so faulty as a rule, has a baneful influence on our spelling. It is impossible for it to be otherwise. The greater attention to the speech and to the accurate pronunciation of the words in reading must of necessity greatly facilitate the acquisition of the letters of the word. It is surprising how many words in common use by children are corrupted. Two years ago in making a study along this line I gave a list of some three dozen words to about four hundred children. The words were all familiar and of frequent use. The words were not pronounced to the children, but were suggested to them by description or by the presentation of the thing itself. Some of the most notable of the incorrect spellings show the word "sandwich" existed as "sanwich," "samwich," "sanbridge," "sandridge"; fully fifty per cent. of the wrong spellings were this last form. Even a greater per cent. than this had the word "tapioca" as "taffyoca."

Faulty speech, faulty pronunciation, stands for more than ineffectiveness and lack of clearness of thought. It, too, must contribute its quota to indifferent spelling. Correct pronunciation of the words of our language brings into the forefront the necessity of a knowledge of phonic values.

By whatever method word recognition is taught we must finally arrive at a knowledge of values of letters as we find them in words. The word and sentence method, the alphabetic method, and any and every other method, finally resolves itself into the phonic method—discovering the word from the letter symbols representing to us certain sounds and the opposite problem the aural analysis of the word.

I said at the outset that I had heard teachers express the opinion that their experience showed that the phonic method is not only not helpful to the teaching of spelling, but was a decided hindrance.

Now it is clear that the phonic teacher must call to her aid representations as graphic as she can make them, of the mechanism of sound. The child at first produces only the simple sounds,

many of them he cannot produce at all without being taught. The child is ever seeing and producing his familiar words; these become the apperceiving arms with which he grasps the new, and to him spelling becomes like his language, accumulative. This point, however, cannot be questioned, that the sound of the whole word gives the best suggestion to its spelling. The association is a natural one, that of similarity, and any difficulty that can be named as confronting the phonic teacher confronts the teacher by any other method whatever.

THE RHYMING METHOD.

It is very certain that almost any word can be lettered off with sufficient frequency to make it well nigh impossible to spell orally in any other but the correct form. It is the usual method of studying "spellings" by the child who has not been taught how to study. It is a vastly cumbersome method, as it does not make use of rational memory by grouping analogous words or words of common derivation, etc. Words are all worked over in isolated fashion. It is for many children who have good imaging powers of eye and ear a difficult and uncertain method. Three or four years ago I tested a group of twenty-four selected poor spellers, all of whom in the examination for discovery among other words misspelled "business." I divided these into four groups for an experiment, taking one after another. With the first group I spent a given time in teaching the order of the letters in the word, having them rhyme them over separately and together until each one could spell the word. With the second group the time was spent in writing out the word on the blackboard and in their books until each one had written it eight or ten times. With the third group the time was spent in spelling the word "buisness," noting that this was the incorrect form, and then spelling it "business," noting that this was the correct form. To the fourth group I taught the word "busy," and derived the word "business" from it, making no attempt to incorporate any other method with this plan, nor did I with any of the others. I might say the word was given among other words, so that no unusual attention would be drawn to this one, and no suggestion was made that they should be tested again. After a week had elapsed I tested the groups. The worst show-

ing was made by the third group, who gave evidence that they were guessing between the customary incorrect form and the correct form of the word, for they divided equally between the two and none seemed very sure. The last group made the best showing, for none spelled it incorrectly, although one or two worked it out with hesitation.

I recently made comparisons of the spelling of blind children, mutes and normal children that proved very interesting, with results pretty much what might be expected. The mutes, relying largely on visual memory, and having no assistance from the ear, made a class of mistakes which the blind children did not make, but which normal children do make, such as writing "trid" for "tried," "form" instead of "from," before such words had been safely acquired. In new words I noticed the blind children gave a good phonetic spelling; the word "predaceous," which occurred in the selection submitted, and evidently new to every child, was incorrectly spelled in the last syllable, for the greater part with "tious."

If we master the knowledge of the child mind, come to know the individuals whom we are teaching, the method will take care of itself. It is important to remember the more frequently the image is brought before the mind the greater will be its tenacity. The greater number of associations we can bring to bear upon the word at its learning, the less likelihood is there to be after unlearning—such as the careful seeing of the word, the careful saying of the word, the careful lettering of the word, the careful writing of the word, the careful relating the word to its origin or some analogous group, the recognition of the word fully as we use it in speech or in our own reading.

INSPECTORS' DEPARTMENT.

THE BEST METHOD OF INSPECTING RURAL SCHOOLS.

JOHN DEARNESS, M.A., LONDON.

(*A Synopsis.*)

"What is the best method of inspecting rural schools?" is a question I can not undertake to answer, because I do not pretend to know which method is best. A method which may be best in one school or at one time may not be best in all schools at any time or in any school at all times.

During my teaching experience five different men inspected my work, no two of whom used the same method. It may go without saying that the effects of their visits upon the school were far from being equally valuable. An ex-teacher is reported as saying of two well-known inspectors under whom he had taught that at their visits one of them kept him busy with what his school was worst at and that he kept the other one busy with what his school was best at.

While there is probably no one *best* way of inspecting rural schools there are several that might be characterized by adjectives in the opposite class.

One of these, which has been called the "four-a-day" method, does nothing thoroughly. The inspector spends but a short time in the school; he asks the teacher a few questions, enters some memoranda in a note-book, expresses the belief that everybody is getting along well considering the circumstances, and disappears.

Another poor method is to make the visit one of inspection pure and simple. The inspector is able to report the status of the school to the trustees, but he does nothing to make the school ~~ally~~ excellent opportunity to become a strong teacher. He is

(Several other defective methods were described.)

The best inspection can be done only by men possessing in a high degree a combination of the qualities of the successful teacher and the successful man of affairs.

The ideal inspector of rural schools must superabound as a teacher—as a teacher of Public School children, and especially of those in the primary classes. His work gives him exceptionally excellent opportunity to become a strong teacher. He is sure to see many superlative lessons now in one subject and then in another. He has a free hand to practise in one school what he has seen in another. To the accomplishments of an excellent all-round teacher he must add culture and executive ability. His must be like Dr. Arnold's:

A strong soul,
Zealous, beneficent, firm,—
Upraising with zeal
The humble good from the ground . . .
Sternly repressing the bad.

His natural aptitude needs the best reinforcing that Model or Normal School can give to several years' experience in Public School teaching, and he is all the better for a good pedagogical course of a University. He must know what ideals are worthy, what methods are practicable, what signs reveal character.

His business qualifications are taxed not only in straightening out the entanglements into which school boards and councils become involved, but also in discerning parents and teachers. He must have confidence in his own judgment to appraise teachers independently of public opinion. On his conscience should lie the duty of giving every deserving teacher generous support and outspoken approbation. He must have the skill and the will to improve the improvable, the power and the perseverance to stimulate and arouse those who carry a spark of pedagogical vitality, and the adroitness or courage, or both, to bury the dead. The teacher and children at least, and sometimes even the trustees and parents, should feel after an inspector's visit that a refreshing breeze has passed their way.

The ideal inspector is a teacher *par excellence*, a fountain of enthusiasm, a reservoir of good business sense.

Now, coming more particularly to the subject of my paper, I beg to offer with diffidence an account of an afternoon's inspection of an ordinary rural school. The method if not the best is the one which to myself at least has given the best satisfaction of any that I have tried. Words and actions may be reported; the spirit, or, to use the late Dr. Hinsdale's phrase, the emotional atmosphere, must be imagined.

I found it worth while in the evening to make preparation for the following day's inspection. I always carried to the school the records of several preceding visits. These were never made in books but on single sheets, and contained the names of the children present in each class, their status as reported by the teacher, and a report of my own examinations. A copy of the report for the trustees and of the notes made for the teacher was carried on a separate page.

A good time to arrive is a few minutes after school is called. Inspection of the grounds and exteriors, never on any account omitting the latrines, can usually be best made before entering the school-room.

To knock at the door and await its opening was my practice. After greeting the teacher and children as pleasantly as I could do I requested them, if necessary, to proceed with their usual work as though I had not come.

In the meantime, for fifteen or twenty minutes, sparing an eye or an ear to the teacher's work at the front, I went among the children at their seats, looking at their work, dropping a remark here and there, and occasionally asking a question. Then, choosing a seat that combined as far as possible unobtrusiveness with vantage for observation, equipped with register and time-table, I proceeded to make notes and to fill the part of the report that related to the conditions of the property, and especially to inspect the manner and methods of the teacher. I found it an extremely useful employment of part of this time to make critical notes—complimentary or otherwise—in duplicate, one copy for leaving with the teacher.

An hour, more or less, usually a little more, was thus spent in inspection pure and simple. About fifteen or twenty minutes before recess I interrupted the routine of the time-table to assign to all the classes that could write suitable, brief slate-exercises such as: Tell in a sentence what your last composition was about; draw an envelope and address it to the teacher; neatly set down six columns for addition, etc., etc. Beginning with the lowest, each class was called to the front, when in a sort of mixed shorthand I wrote the name of every pupil present and the teacher's report of the status of the class in the important subjects, comparing it with the similar report made at the preceding half-yearly visit. (Samples of such class reports were shown.) I also glanced over the brief exercise brought up and

assigned another of greater length in a different subject, to be shown after recess.

Quite frequently at recess I sent for one or more of the trustees, who usually arrived about dismission time. Expenditures advised in a report are more likely to be made after *vive voce* explanations than without them.

Between recess and dismission, besides examining the work assigned before recess, I tried to find time to teach at least one primary, one intermediate and one advanced class. With these were sandwiched opportunities to further test the teacher. For example, I might say: "You see, Miss Blank, that the class cannot tell why Montreal grows more rapidly than Kingston; will you teach the reasons while I look over the second class's arithmetic exercise?" On the teaching side I selected lessons that either were in subjects that seemed in most need of improving, or that the teacher had requested assistance in, and on the examination side in the subjects, if any, that seemed neglected.

The method outlined allows, on an average, about an hour's inspection, an hour's teaching, and an hour's examination. It need not be said here that when a man is teaching properly he is at the same time examining in the best way the mental habits of the class.

Sometimes I went through the form or appearance of exercising the children's assistance in filling out the printed form of report. From the printed form I would read a heading, *e.g.*, "The cleanliness of the room." "What shall I report under this heading? Is the room usually cleaner than it is to-day?" etc., etc.

Of the forms provided by the Education Department I found the one used in the early '90's and up to 1898 the most satisfactory—indeed, far more so than the one sent out in the last-named year.

I always addressed the children before dismission, usually reviewing their progress, or lack of it, with speculation as to the causes, telling a story if I could think of an appropriate one to illustrate a desirable ideal, and discussing its application.

I aimed at individualizing the children as far as I could. This result was furthered by the practice of taking the names and making a few personal notes for reference and comparisons at the next visit.

I usually asked the teacher, especially a new one, and that early in the half-day, whether there were any difficulties in method or management in respect to which I might be able to give him any advice or assistance. If he did not think of any at the moment, several usually occurred to him before the day was over. The construction of the time table, the teaching of some subject or some topic, and lack of equipment, were among the difficulties frequently mentioned.

It is advisable to make no adverse criticism of the teacher in the report to the trustees that is not discussed with the teacher or at least mentioned to him. The report might be as severe as the teacher expected, but never more so.

If a dozen or even a score of improvements were needed it usually proved a better course to single out a few for special pressure than to make a long list of required improvements without any particular emphasis.

THE IMPORTANCE OF CONTINUATION CLASSES IN RURAL EDUCATION.

R. H. COWLEY, B.A., OTTAWA.

The due improvement of rural schools is the cardinal problem of the Ontario system of public instruction. The efficient solution of this problem involves a clear understanding of the possibilities of continuation classes. These classes were primarily intended to afford a measure of higher education for rural sections not included in High School districts. As a result of loose thinking, from which even educationists are not always immune, they have come to be regarded as embryo or junior High Schools, or, as some critics are pleased to term them, one-horse High Schools. It may not be undesirable or unreasonable to expect that the continuation classes of the large villages and small towns will some day ripen into plump little High Schools, but it is surely time to learn from our educational history that our rural schools should cease to work out their salvation in the city-ward direction. The fortunes of the High School lie in the urban centre; the fortunes of the continuation class are wrapt up in the rural district. It is a case of two firmaments and two stars; the glory of the High School is one and the glory of the continuation class is another. The manifest outstanding conditions demand a differentiation between the secondary education of the urban centre and that of the rural district. To longer perpetuate the error of shaping rural education after that of the city is little more excusable than seeking to drive rural life into urban channels.

Without entering into a discussion of the intrinsic merits of the course of studies prescribed alike for High Schools and continuation classes, the record of the candidates sent up from the latter to the junior teachers' and junior matriculation examination proves that it is within the ability of continuation classes to provide an excellent measure of secondary education for the rural districts. Even if they were forced to continue in the same course as the High Schools, they afford some peculiar advantages that perhaps more than offset their disadvantages.

For instance, it is now quite possible for every four or five average school sections to conduct one continuation class. This enables the students to remain under the parental roof, where they are free from the distractions that would otherwise entice them were they boarders in the average town. The personal influence of the teacher can be exerted with greater effect in the continuation class than in the large graded High School, where teachers are told off according to their special subject. In the continuation class there is also much less collective instruction and more individual effort on the part of the student. The rural continuation class is a source of daily incentive to the pupils of the lower classes in the Public School proper. Also there are fewer pupils per teacher in the continuation classes than in the High Schools, thus enabling the teacher to do more thorough work and follow the progress of each individual more closely.

Those good people who doubt that one teacher can conduct a course of secondary education with any proper degree of efficiency forget what the earnest pupil and the devoted teacher achieved in the day of small things in the High Schools of this Province. In 1867 there were only 5,696 pupils in the High Schools of Ontario. To-day the continuation classes, with their 5,349 pupils, stand relatively where the High Schools stood 37 years ago. But with this difference, that the number of High Schools has increased very slowly, at an average rate of one per cent. a year, while the continuation classes of grade A are rapidly increasing, the increment being 15 per cent. in the last year. It is a reasonable inference from the statistics that the people of the rural districts prefer the continuation class near the home to the more pretentious High School in the town. At present in the grade A continuation classes there are only 27 pupils per teacher, while in the High Schools there are 42. Of course the High Schools are much better equipped, and there is, perhaps, a more intensive study of certain subjects. But enthusiasm for a subject of study is not to be compared with enthusiasm for the all-round progress of a pupil. The personal influence of a good teacher finds its maximum of opportunity, and the student's spirit of self-help its maximum of effort in the continuation class, while in the High School the conditions are unfavorable to such results.

But while continuation classes are of the greatest value on

account of what they are achieving under present conditions, their possibilities as a sure and effective agency in the permanent improvement of rural schools are of still greater importance. Only a temporary and dubious good can result from raising teachers' salaries by Act of Parliament, if this were all. To some extent good salaries and good normal schools will improve the standard of the work. To be enduring, the growth of progress must be endogenous. We cannot expect to sustain the rural schools by compulsion of school boards. Elementary education is not self-sustaining, least of all under circumstances which lure the better educated to the urban centres. The problem at the bottom of any lasting improvement of the rural schools is how to produce an educated population that will remain in the rural districts. We must hitch the rural school waggon to a star; the Agricultural College is the star, and the continuation class is the lynch-pin.

In other words our rural system of education should incline the pupils toward country life. Country life will result from the ability to make country life successful, and this is largely—very largely—a matter of education.

The High Schools look toward the university and the professions and to some extent toward the business pursuits of the city. The continuation classes should look chiefly toward the institution that is to soon become the university of the farmer's son and daughter—the Ontario Agricultural College. The B.S.A. course of this institution includes two years of academic work of no higher grade than that done by continuation classes of grade A in their course of three years, since each admits students who have passed the entrance examination. By a slight adjustment of courses of study between the Departments of Education and Agriculture this academic work might be done with great mutual advantage in the continuation classes of the rural districts. The College could then provide short, practical courses in farming pursuits for those who have completed the three-year course in the home continuation school. With this encouragement the brightest boys of the rural schools would go up to Guelph in ever-increasing numbers, return to a successful career on the farm and constitute a growing body of ratepayers who could be depended upon to carry rural education to the highest standard of efficiency of their own free effort.

Pupils educated in the continuation classes would be also the best material for teachers for the rural schools, provided they were required to take suitable short courses at Guelph in addition to their Normal training. Were the Education Department to partly meet the cost of such short courses for teachers this would be one of the most effective ways of aiding rural schools.

It is difficult to see why the Agricultural College should continue to spend so much of its time and energy on elementary academic work that is now within reach of every section of the Province. It is equally difficult to see why the Education Department should longer adhere to a policy that has failed to produce an educated agricultural population, but has had the contrary effect of impelling the educated toward city life, thus leaving the rural schools too much under the influence of the intellectually halt and blind.

With the continuation class as a vital link between the rural school and the Agricultural College, rural education will become self-sustaining, the agricultural high school will arise in due course and in its fit relation, and the problem of rural school improvement will have been solved.

INITIAL NATURE STUDY IN PUBLIC SCHOOLS.

WM. SCOTT, B.A., TORONTO.

Nature study is a term which yet carries with it a very indefinite content. Almost every writer and teacher gives it a meaning of his own. Thus some contend that nature study and natural science are interchangeable terms, and as a consequence, the course consists of a number of subjects all treated in a scientific method. With these the subject matter and the method of treatment are of primary importance. Others regard nature study as of value in training the senses, awakening the mind and arousing an interest in and a sympathetic appreciation of the world about us. These regard the subject matter of no importance so long as the desired goal is reached. Between these two extremes there are to be found all phases of opinions. In this discussion the term will be used to signify an acquaintance with the nearest, commonest things about the child; such an acquaintance as Nokomis taught Hiawatha; as Whittier's Barefoot Boy had with the fields and the woods; as Wordsworth, Thompson and Burns had.

This subject, if it is a subject, arose out of object lessons. These dealt with things often afar off, and if at hand, almost exclusively with inanimate things. Their main purpose was a knowledge of facts about things. Now, in the gradual evolution of a science of education those who deal with children began to recognize as educational principles certain laws, such as the following:

1. Action is the first law of growth and of education as well. The child learns all he knows by doing or by trying to do things.

2. Individuals vary enormously in their capabilities for different kinds of mental and physical action.

3. Children as well as older people have an intrinsic interest in life, especially when associated with color and movement.

Object lessons were found to correspond to none of these principles. Pupils learned facts in a passive way. These often had no relationship to any interest that they had. This store of facts was of no present use and was generally forgotten or not

recognized as being applicable to some problem which arose in their work. The facts were mere husks upon which the mind failed to feed.

Then why not drop an acquaintance with what is nearest and most commonly met with altogether? The answer is obvious. An acquaintance with the common things of life is absolutely necessary for that development of soul and intellect which it is the express business of schools to impart.

The curriculum which held sway so long could never have been promulgated unless teachers had been blinded by the Renascence ideal which at first, as you know, required all to have a classical education, obtained from books written in Latin, a great step in advance being made when Latin came to be studied in the vernacular, and a still greater step forward being taken when the vernacular was given a place on the curriculum of studies. Still books held sway and there was nothing to appeal to the nearest and most cherished interests of the child. The rod was of necessity the great persuader. Now, as educational principles were evolved, it was seen that things must be studied to acquire a correct use of words; so minds were stuffed with facts about things. The more this work was carried on, work of which Stow, Sheldon and others were disciples, the more it became evident that the only difference between this and the rote of the old schools was one of subject matter. Essentially they were the same. The storm centre was removed from words dealing with a dead language, to words dealing with dead or distant things.

Although we are still living in a text-book age, we are beginning to recognize that books are only a secondary, not a primary means of education. We are now making gallant attempts to throw off the trammels of the Renascence. In all progressive countries, curricula which would have held sway from the time that schools for the masses rather than for the classes were established unless the judgment of teachers and others had been prejudiced by the Renascence ideal, are now being framed. These invariably include nature study. It is from the very recent introduction of this work that the great diversity of opinions arise as to what it is, its purpose, how it is to be taught, etc. As yet we are largely groping in the dark both for the subject matter and method as well as for the results that are to be expected.

Nature study, as it appears to me, at the very outset, turns the inquiring mind of the child to things near at hand. It continues at school the natural development which had been going on before he entered school. It causes him to do this work more systematically. The more systematic study enables the child to propose and solve many problems which before had escaped his notice from the fact that they were so near and so ordinary. In the experience of some here this is not a new subject. They looked after this work in a quiet, unostentatious way, never thinking that they were doing anything very wonderful, being intent only in fitting their pupils the better to understand the other work of their schools, and to give them the desire and the power to do for themselves. Burns expresses this idea when he says :

" Give me a spark of Nature's fire,
 'Tis all the education I desire."

No doubt he felt that coming into touch with his environment in a sympathetic, soul-inspiring way, if he wanted more knowledge, he had the power to get it.

Then nature study is one of the most practical subjects with which schools have to deal. This is a so-called practical age. Nothing is worthy of consideration unless it has a practical side. We have returned to the Roman ideal of the useful, and *cui bono* is constantly heard wherever educational problems are discussed. Now, nature study by setting up proper ideals, by bringing us into contact with the Creator through His works, by inciting in us ideas of the good, the true and the beautiful, and by making us acquainted with the things we must work with all the rest of our lives, is surely both practical and useful. Since it makes one alert, quick to understand changing conditions, and tends to fit one to adapt himself to these changes, surely it is more practical than the merely technical, which is so often meant when a practical education is spoken of. The person who has handicraft alone is the most mechanical of all men. He is a poor creature, limited by the traditions of his craft, and works solely by rules of thumb.

Initial nature study must be determined by educational principles and by local conditions. Since we must live with common things, these become the natural, primary, fundamental, necessary subjects. A study of those expands the spontaneous inter-

ests of the child in his environment into a permanent and abiding sympathy with the life he must live. Not only must we begin with common objects, but we are to consider the child's sympathies and must lead him out and on. One will take kindly to one subject, another to another. We are concerned with the child, not with the subject. The child is to be developed. One of our great mistakes in Ontario has been to consider schools as places where subjects are to be taught and not as places where children are to be trained. The false standards which we have set up regarding the passing of examinations show this. The result has often been that pupils leave school with no permanent desire for culture and all that this term stands for but with a pronounced dislike for school and school work. Why do children like plants and youths in general dislike botany? The fault is neither in the plant nor in the youth. It lies in the mode of procedure; form and structure are of interest to only the few. A minute study of these is not only void of interest but too often leads to a positive dislike of plants.

Again, initial nature study begins with such common objects and phenomena as attracted the child's attention before he came to school. He was interested in his pets, in bright flowers, in birds and their ways, in gaudy butterflies and moths. Hence begin with conspicuous flowers, common birds, the more beautiful insects, domestic animals and pets. All these deal with life and action, with things that appeal to the interest of the child. Does the number of petals in a flower do this? Does noting the form and structure of leaves, or roots, or stems do this? Does plucking the wings from a grasshopper or counting the legs of a fly do this? Does memorizing facts from books or communicated by the teacher concerning plants, or fields, or animals do this? Have we not our interest stirred and our sympathies awakened by discovering what a plant or an animal can do? How it lives? How it protects itself? How it is enabled to discharge its functions? Are we not interested and become curious when we are brought face to face with some reality of life? when we have some problem of nature to solve?

Hence as pupils are not to learn about things but to go to things and learn from them, the initial steps are to be taken out of doors around the school premises. The work will differ greatly in different schools, even at the same time of the year,

owing to different conditions. The effects of indoor nature study are well described by Emerson :

"I thought the sparrow's note from heaven,
Singing at dawn on alder bough,
I brought from home in his nest at even,
He sings the song, but it eheers not now,
For I did not bring home the river or sky ;
He sang to my ear, they sang to my eye.

"The delicate shells lay on the shore ;
The bubbles of the latest wave, fresh pearls
To their enamel gave ;
And the bellowing of the savage seas,
Greeted their safe escape to me.
I wiped away the weeds and foam,
I fetched my seaworn treasures home,
But the poor unsightly, noisome things,
Had left their beauty on the shore,
With the sun and the sand and the wild uproar.

Nokomis is a true teacher of nature. Under her guidance Hiawatha progressed as follows :

"Of all beasts he learned the language,
Learned their names and all their secrets ;
How the beavers build their lodges,
Where the squirrels hid their acorns,
How the reindeer ran so swiftly,
Why the rabbit was so timid,
Talked with them whene'er he met them,
Called them 'Hiawatha's brothers.'

Stars, comet, rainbow, birds and plants were all studied. No dissection here; no hard names to deaden interest, extinguish curiosity, and arrest budding intelligence here. One more :

"Then the little Hiawatha
Learned of every bird its language ;
Learned their names and all their secrets ;
How they built their nests in Summer,
Where they hid themselves in Winter ;
Talked with them where'er he met them,
Called them 'Hiawatha's chickens.' "

But some may say this is a very superficial knowledge of nature. That is true, but when pupils have advanced so far they will not be satisfied. Little by little, Oliver Twist-like, they will

want more, and will begin to propound questions which will show how rapidly they are advancing, not in a knowledge of facts, but in an exercise of their judgment. Thus a genuine appreciation of nature and of natural phenomena will be laid which will grow into a lasting admiration for natural science in the High Schools and not as so often happens at the present time, into a "Thank God, I am done with that subject."

(Here followed a number of practical suggestions for helping the teacher to take up this work.)

A few words regarding school gardens. These are by no means new in the world of education. Comenius declared that a school garden should be connected with every school. Rousseau showed their importance in child development. Basedow tried to found a school based on Rousseau's principles, and hence had a school garden in connection with his Philanthropinum. Pestalozzi and Froebel both gave prominence to this work. For a considerable number of years past the schools of Austria, France and Belgium have had compulsory courses of study for primary grades which give "instruction in horticulture and agriculture so that pupils acquire a knowledge of soil, fertilization and field work." This includes not only theory but also practice-work in the gardens.

School gardens represent in America the present advance step in educational work. In spite of the fact that some regard them as "fads" and "spasms," they are the best of all ways for introducing nature study. Creating as they do a love of industry, a predilection for the country, for nature and for things beautiful, they become a most important adjunct to that training which it is the province of every child to receive, and they serve as the most practical form of industrial training yet devised. They make boys and girls more intelligent, more natural, and thus truer men and women. The great lack of town and city children to-day is a lack of initiative and of a sense of responsibility for faithful discharge of duty. The country boy and girl with their chores and their stents of work acquire much more self-reliance. The latter, however, can be greatly benefited by learning through personal experience in their gardens the work of weeds, the benefits of good seed, the importance of careful cultivation, the best means of preventing the evils of drought, how to deal with garden pests, etc.

The best gardens for all purposes are those which the pupils fit up and care for at home. They can here exercise their individuality, their judgment as to what to sow, when to weed, etc.; whereas these are done at school largely under specific instruction, and hence there is lacking that free play of the mind which is the very essence of true development. However, as so few parents, whether in towns and cities or in the country, know anything of gardening, school gardens are necessary to impart that enthusiasm and knowledge which are required to carry the pupils through a season or two until they acquire a motive force from their growing interest in their work.

But the question may be and is often asked: "How is the teacher to find time for all these new subjects?" If you have caught the spirit of these remarks you will have seen that it is not necessary to give much school time to the work. It takes only a minute or two to set a problem which may require weeks to solve. The value of the solution lies not so much in the answer, as in the intelligence, alertness and judgment which are evoked in the endeavor to discover a solution. Is there any work in nature study which cannot be correlated with geography, or the literature and reading lessons, or the agriculture? General intelligence, or general nature acquaintance, would be far more descriptive terms of both the content and the purpose of this work than the one selected. Hence it may be questioned whether it is necessary to have a place for nature study on the time-table at all. It should not be forgotten that its purpose is to reinforce the three R's, not to displace them; to bring children into vital contact with their environment, not to supply a means of filling their minds with facts about nature. Hence an acquaintance with nature makes the reading intelligent; replaces the rote and definitions of geography by a comprehensive insight into what is being taught; and so illuminates their whole nature that the entire work of the school receives a decided uplift. Perhaps a half-hour on Friday afternoon to sum up the discoveries of the week and to suggest a new problem for solution would not be out of place.

At present many teachers feel that they are not prepared to grapple with this work in the same way as they can with arithmetic or grammar. They court questions in these subjects, but in nature study they dread them. No doubt this distrust arises from two causes; they know that they are ignorant of nature's

secrets and they think of it as a subject like history or arithmetic. Now, while I am sure that it is not necessary for one to be versed in all the sciences to be able to manage this work with efficiency, yet each should have sufficient knowledge to give that confidence which enables one to say: "I do not know. Let us try to find it out," and to be able to give such directions as will enable the pupil to find an answer to the problem proposed.

Teachers must also recognize the truth that in this work method is of far greater importance than matter. As already pointed out, it is not facts that are to be mainly considered, but it is the mode of making the discoveries. If teachers do not get a clear view-point here, nature study will soon share the fate of other "fads" and "spasms," such as object lessons. But with a clear understanding of the purpose of the subject, they will not dread it as they do now, and will themselves become learners and discoverers like their pupils.

The teacher must learn to love nature and have an ardent desire to know more of it. This will lend enthusiasm to her work, for here, as elsewhere, "like teacher, like pupil" will obtain. At the outset this requirement may seem to be a bar to many teachers ever succeeding with this work, for they care nothing for nature, but such is the attractiveness of mother earth that in a short time an extrinsic interest becomes an intrinsic one.

As Longfellow has it:

"And Nature, the old nurse, took
The child upon her knee,
Saying, 'here is a story-book
Thy father has written for thee.'

"'Come, wander with me,' she said,
Into regions yet untrod :
And read what is still unread
In the manuscripts of God.'

"And he wandered away and away,
With 'Nature, the dear old nurse,
Who sang to him night and day
The rhymes of the universe.

"And whenever the way seemed long,
Or his heart began to fail,
She would sing a more wonderful song,
Or tell a more marvellous tale."

In conclusion, permit me to say that some here may entirely disagree with the position I have assumed in pleading for merely a general acquaintance with nature and nature's works. Some may desire that minute knowledge of form and structure which are often set forth in text-books. But if the real test of all education is the interests and tastes which are permanently aroused, the desires and aspirations which become impelling forces, and the social ideas which are generated and so dominate life, then I am convinced that a too minute study of nature in the earlier years engenders such a dislike for her works as permanently to defeat these ends by lowering the tastes and aspirations of those thus taught.

TRUSTEES' DEPARTMENT.

PRESIDENT'S ADDRESS.

A. WERNER, ELMIRA, ONT.

In looking over the records of the Trustees' Department of this Association I find some things which are worthy of being referred to by me. There are not many institutions which are able to produce a greater record of continuous attendance of its members and, when you come to consider that the time of these gentlemen is well taken up in the pursuit of their own duties, that the various institutions which they represent are bearing only a small portion of the expense and that some of them might worthily rest on the laurels which have been won, it is difficult to give reason why they attend so faithfully.

Different reasons have suggested themselves, and among others was the pleasure they derived therefrom, for unless it afforded them pleasure they would scarcely sacrifice the time and money it costs.

Wherein lies this pleasure? Is it in the fact of visiting Toronto, does it lie in the fact of meeting with one another? Neither of these will solve the question fully, but, when you add thereto, the grander and more ennobling motive which impels them, and one which originates from a different source, namely this: they are following the Voice which speaks to them these words "Never owe any one anything except brotherly love; for those who love their fellowmen have satisfied the Law," you may rest contented with the solution. George Anson Aylesworth is reported on page 412, of 1899 report of the Proceedings of this Association, as having said: "Love for the little ones is the mightiest motive actuating mankind. Solely for their sake the troublesome burden of the School is borne." The statement coming from such eminent authority we accept as correct.

We admire growing fields of grain and are prompted to do so in the hope of securing our daily bread for another year. We are

delighted with the knowledg of the fact of the growth of our beloved country, but nothing can equal the joy of knowing that the little ones of our country are to be provided with all such necessities as will make of them worthy citizens in the future, men and women in whom it will be safe to place the destinies of this our Canada.

The subjects dealt with are many and cover a wide range, and although the representation from the Rural Schools is the least (only 13 out of an attendance of 90 in 1905), I find that the time taken up with questions dealing directly with the rural school is very considerable, among others the following have been considered, Union of School Boards; Agriculture in the Public Schools; 4th and 5th Forms of the School curriculum; Public School Libraries; the Public School curriculum; uniformity of Entrance and Public School leaving examinations; free conveyances of pupils to Rural Schools; auditing accounts; the Bible as a Text Book; the consolidation of Rural Schools; Rural School Trustees; the improvement of Rural Schools; Continuation Classes; the teacher's agreement; 3rd class certificates, etc. I cannot begin to enumerate the many questions which have come before this department in other respects from time to time, each one dealing with some important feature in the grand work. It is pleasant to think back and review the difficulties that appeared to construct the path of a measure and know that the difficulties have been overcome, as in reference to the Continuation Classes. We read in the papers recently "Carleton County wants aid for its successful system." A deputation from Carleton County waited upon the Minister of Education and asked for an increased grant for the system of continuation classes which is being carried on successfully in 18 out of 27 schools in the County. A consolidated rural school is in operation in Wellington County. 25 Manual training centres have been established. The standing of the teaching profession has been raised and this department has given counsel whenever requested to do so to those who are engaged in framing the curriculum of school studies.

These facts clearly show the importance of an annual meeting where questions bearing upon the vital questions pertaining to our school system may be discussed by the representatives of the people.

Rev. Alex. Jackson, M.A., Ph.D., in his address as reported

in our proceedings for 1896, page 465, is reported having said, "The Government and the Educational Department represent the people in administering educational interests, subject to Constitutional safeguards; and when they cease to represent the people, or appear to, the appeal is always to the latter. Even as Boards of Trustees administer the trusts for the people subject to Government or constitutional safeguards and they too are ultimately subject to the people and as the Trustees' Association is a representative body in which every Trustee Board in City, Town or Rural district is, or may be represented, the association really represents the people of the Province who are directly interested in educational affairs. It should be realized not only by the members of this association, but by every Trustee in the Province."

J. H. Burrit, B.A., in the same year in his paper on "Parents and Trustees," page 392 of the Proceedings, is reported having said, "As a Trustee he stands in an immediate relation to the parent, the pupil and the teacher. He owes it to the parent not merely to perform the statutory and routine duties of his office in a prefunctory and indifferent spirit, but to take such an active interest in the matter of the trust as will secure it being placed in the highest state of efficiency that circumstances will permit," and likewise states "when therefore any man accepts the office of Trustee he should feel that he is under a sacred moral obligation to administer the duties of his office so as to effect the greatest benefit for them who have placed him in so responsible a position."

In the closing remarks of a paper read by John McIntyre, K.C., in 1904, and reported in our proceedings page 351, he is reported saying, "Whether he is a belted knight regulating a palatial school or a member of the obscure trio of some obscure school section in some obscure back township, struggling to raise \$100 or \$200 a year to pay an obscure teacher, he is a distinct force in the community, joining his neighbors in the solemn work of uplifting humanity, kindling a light here, shedding a ray there to assist in the ushering in of the hoped for period when every valley shall be exalted and every mountain and hill shall be made low, and the crooked shall be made straight, and the rough places plain." Can we say with Danton "I am ready to retrace for you the picture of my public life. For three years I have done everything that I believe I ought to do for liberty, during the entire period of my ministry I have employed all the vigor of my

character. I have brought into the Council all the activity and all the zeal of a citizen inflamed with the love of his country."

Danton says after bread education is the first need of a people.

The question may be asked, what remains for us to do ? The development of Canada has been greater within the last few years than for any similar period previously.

New conditions have arisen, and in the eyes of the world a new nation has been born. As the evolutionary process is going on there arises a greater need for watchfulness and activity in the laying of a solid foundation, so that the structure may be permanent in making good, law-abiding citizens, and giving them the greatest happiness in the struggle for life, for what is education but "The Provision of an environment and the development of the sense of responsibility."

Has the sense of responsibility been properly recognized by the people of this Province? The Report of the Minister of Education for the year 1905, on page 11, states: Pupils enrolled, 1904, of all ages in the Public Schools during the year, 396,814; average daily attendance, 227,165. On page 15, under the column of attendance in Rural Schools, the attendance is given as 56.93 per cent. of the total. On page 34 he gives a report of the attendance at the consolidated school at Guelph, and of the same schools before consolidation for six similar months for the years 1905 and 1904 respectively. The average attendance at the consolidated school was 89.66 per cent., whilst the attendance in 1904, before consolidation, was only 66.8 per cent., and furthermore the increased total attendance shows an increase of fifty per cent. One of the Farmers' Institute lecturers is said to have reported to Superintendent Putnam that in one school section in Middlesex the school has been closed because there were so few scholars of school age in the section. This certainly is a very extreme case.

Japan has been an object lesson to the world in respect to Educational work. In a book written by Lewis, entitled "The Educational Conquest of the Far East," page 64, he states that in 1885 50.50 per cent. of the school population was under instruction, in 1900 81 per cent. This effective school system raised the percentage of youth under instruction from 50 to 80 per cent. in 15 years. There is a compulsory law. Parents are required to enforce attendance except in certain cases of sickness and poverty.

After Japan had resolved to educate the youth of the country the following mandate was issued by the Emperor: "It is intended that henceforth education shall be so diffused that there may not be a village with an ignorant family or a family with an ignorant member." It also resolved to study at the feet of those who knew; there was boundless admiration for new truth and reverence for its exponents. The system is far reaching, having adopted that which they considered was best from the Western World. One striking feature of their system is the number of their Normal Schools. In 1873-4 eight Normal Schools had sprung into existence, and now (at the time of writing) there are fifty-two. The regular course of study includes 22 subjects and some of these are sub-divided and include morals, history of education, principles of education, Japanese language, Chinese literature, history of Japan, foreign history, geography, mathematics, consisting of arithmetic, geometry, book-keeping and algebra, physics, chemistry, botany, zoology, physiology, mineralogy, writing Chinese and Japanese running hand, music, gymnastics, foreign language group, including reading, writing, grammar and conversation, agriculture, political economy and manual training, the course of study requiring close application for four years. They seemingly are not afraid of too many subjects on their curriculum, but view knowledge very much in the same light as was held by Arthur James Balfour, a noted English statesman and author, who, in an address delivered at St. Andrew's University in 1887 is reported having said among other things in reference to the maxim, "A little knowledge is a dangerous thing." What is it "little" in relation to? If in relation to what there is to know, then all human knowledge is little. If in relation to what actually is known by somebody, there we must condemn as "dangerous" the knowledge which Archimedes possessed of mechanics, or Capernicus of astronomy; for a shilling primer and a few weeks' study will enable any student to outstrip in mere information some of the greatest teachers of the past, that so far from a little knowledge being undesirable a little knowledge is all that on most subjects any of us can hope to attain and that as a source not of worldly profit but of personal pleasure it may be of incalculable value to its possessor.

The nation's strength lies in the education of its youth, and as there are so many different ways in which the work is carried

on in the building of a nation, an opportunity should be afforded them in the choice of subjects in which the greatest benefit to them would flow in the great struggle for life (all benefits are not viewed in a monetary light), but if the precepts in the following lines are followed

“The heights by great men reached and kept
Were not attained by sudden flight ;
But they, while their companions slept,
Were toiling upward in the night :”

success will crown their efforts.

Our Province claims the attendance of our children of school age.

Provides means and measures for their intellectual development.

Regulates by wise laws for the carrying out of its provisions.

What availeth all this if we, who are the representativss chosen by the people and in whom our government places the sacred trust, do not attach to our position a proper estimation of the high duty of our calling. Our department has been of great benefit in the past and I hope and trust that its usefulness may grow and we may become one of the most important, if not the most important, department in this great Association.

The programme which has been prepared no doubt will result in profit to us and we will be inspired with new thoughts and our zeal in the work will be increased and we will return to our homes more anxious than ever to give the benefit derived at these meetings to our respective communities.

I thank you for the honor in electing me your President for this term.

TEACHERS' CONTRACTS.

G. A. AYLESWORTH, Newburgh.

If no one were concerned except the teacher and the trustee, the matter of contracts between them might safely and with propriety be left to themselves, like any other business transaction. One of the saggest of wise King James' subjects, John Selden, says: "Lady Kent articed with Sir Edward Herbert that he should come to her when she sent for him, and stay with her as long as she would have him; to which he set his hand. Then he articed with her that he should go away when he pleased, and stay away as long as he pleased; to which she set her hand. This is the epitome of all the contracts in the world betwixt man and man, betwixt prince and subject; they keep them as long as they like them, and no longer." But the vexation, or the relief, as the case may be, caused to the trustee by the going of the teacher, is not to be considered along with the injury sustained by the students, for whose sake both the trustee and the teacher may truly be said to exist. The Law does not allow pupils to take care of themselves. How are they to be protected? When in the midst of a term a teacher leaves a school, some of the students realize the necessity, and study harder. The sooner a student learns that upon himself depends all, the better for him; but the number of such wise students in any school is always small. The great Italian has well said: "Brains are of three sorts: the one understands of itself; the second understands as much as is shown it by others; the third neither understands of itself, nor what is shown it by others." The great mass of school pupils are of the second sort. The loss of a teacher is to them a calamity, from which only the trustee, and he only partially, can protect them. There should always be written contracts, in which the teacher would engage under penalty not to leave, except with the Board's consent, till the term's end.

It is impossible but that vacancies will come. But it is intolerable that the misfortune of one school should be made to disturb and afflict a dozen others. Teachers that persist in deserting their posts in the midst of a term should be black-listed.

Such a list, I trust, would never be long; and probably the mere fact of its existence would tend to shorten its existence.

Some argue that teachers ought not to be debarred from bettering their circumstances; but they ought to be ashamed to desert their trust for lucre's sake. A Board that in the middle of a term would tell a teacher to go, for they had secured as good a teacher for less salary, would rightly be considered unjust.

Instances have occurred of teachers engaging with more than one board at a time, choosing the best salary, and letting the others "whistle down the wind."

Akin to this practice is another, not so blame-worthy. An advertising Board selects an applicant, only to be told, after the loss of valuable days, or it may be a week, that the selected applicant has accepted higher salary to stay where he is. Twice since 1st January the Board to which I belong, has had this provoking experience; one member remarking that "we seemed to be doing much good in the world—raising teachers' pay." Teachers capable of being tempted by a few dollars to deal otherwise than in accord with ordinary commercial honesty, are not fit to train youths.

CITIZEN-MAKING, THE MISSION OF THE SCHOOL.

JOSEPH G. ELLIOTT, Kingston, Ont.

The child is our most valuable asset. Being so, care and attention should be expended upon it lavishly. Spending half of its days for five days in the week for forty weeks in the year in school it may safely be asserted that the astute trustee will strenuously endeavor to make those days of environment ideal. What is the ideal? A school in which the child will be taught mentally, morally and physically. An institution which will give us intelligent, upright and useful citizens.

Japan caught the idea in 1890 when by imperial ordinance it was decreed that "elementary schools are designed to give the children the rudiments of moral education, and of education specially adapted to make them good members of the community, together with such general knowledge and skill as are necessary for practical life." It goes on to direct that at first matters which are easy to emulate, relating to filial piety, brotherly kindness, friendship, frugality, truthfulness, self-restraint, bravery and similar virtues should be taught, gradually advancing to such subjects as one's duty to the state and society, thus elevating the sentiments and strengthening the ideas of the young, fostering in their minds an enterprising and courageous spirit, and due respect for public virtues, coupled with the loftiest admiration of patriotism and loyalty.

CANADA'S CHANCE.

"The twentieth century belongs to Canada," is a phrase Sir Wilfrid Laurier has lately frequently used. To make it one of credit much will depend upon the citizens it contains. We may give it the highest civilization the world has known, or it may show the decadence of many past nations that have adopted wrong views and wrong ideals. To make it the best we must have the best in education, in moral and religious training, in all the elements that make men strong, vigorous, helpful and hopeful. In this work the schools, where half of the life of children is spent, must do a full share. And to you, gentlemen, as guardians of "the hope of the country" is entrusted a great and

weighty responsibility, a responsibility that will affect the lives and times of the great masses that will inhabit this highly favored land. Will you reach up to the demands required of you?

Commercialism, with its deadening influences upon the humanities, is the foe that, as Canadians, we must meet. It will swamp the people unless principles are inculcated that will demonstrate that wheat, or gold, or ores, or farms, or stocks are not the best to live for. They are desirable, but along with them must be brotherliness, self-restraint, self-respect, in fact all the higher qualities of citizenship and patriotism.

"What breed of children shall we have?" The destinies of Canada depend upon the care and attention we pay to developing them. The state should be concerned in this, a thousand times more so than in the development of the country's trade, the avenues of communication, productiveness of the soil or the bringing forth of the earth's rich ores. A writer has said:

"In proportion as a community succeeds in embodying righteousness and good will in public administration and private life it wins content and happiness, and, incidentally, it wins some material wealth and bodily comfort and that physical order and peace which are essential to the happiness of the mass of the population. For many people the incidental winnings are the only things seen or thought of, yet these material advantages are secondary objects and results. The objects in view of the real leaders are ideals; the consummation of happiest issue is a state of mind—not wealth, but health, not self-seeking, but self-giving. 'One for all, all for one.'" This sound motto epitomizes what I urge when I call for true, real citizenship. It includes all those energizing forces, that will make our country great alone in the sense of nationhood.

WRONG IDEALS.

Already in the United States the attention of the wisest men is drawn to the evils due to teaching selfishness and exclusiveness, to giving forth the idea that money-getting is the highest thing attainable, that it is better to develop in the schools clear heads and stiff backbones than warm, human hearts. The Chicago Tribune has rebuked this spirit which engenders strife and anarchy. It says "With this clear-minded, stiff backboned

ability has come a dulled conscience and an atrophy of the finer sensibilities. John D. Rockefeller, in advising the young man who wishes to succeed to deny himself all happy intercourse with his fellow-men effectively illustrated this development of character—the character that has the clear mind and the stiff backbone, but no warm heart. A clear mind and a stiff backbone! The country is full of them. They are to be found wherever wealth and power have their abode. They make successful men, but it is being proven daily that they do not necessarily make good citizens. It is the warm heart that we need more in our national life. Sympathy, humanitarianism, patriotism, honesty. These are the attributes of the warm heart. To suggest that the school children of the country be taught to regard them as things that should be shunned is a serious mistake. The world would not suffer if we had warmer hearts and leaner pockets than men of the Rockefeller stamp provide."

TWENTIETH CENTURY EDUCATION.

What education is desirable in this twentieth century? A ready answer is an education of the head and heart, or intelligence grounded in morality and righteousness. It was Abraham Lincoln who said to the boys of America "that they must follow truth, justice and humanity if they wished to become useful and honorable men." What was said by President Lincoln is important still. Every trustee I address is agreed, I am sure, that "one of the most effective ways of stimulating the powers of youth is to bring them together in a school and to teach them certain things which they believe assist in the development of the latent powers of the individual. You are also agreed that the best education of the masses must be the broadest and wisest which our school system is able to furnish—broad enough and strong enough to equip men and women with power to get and do the best things in life; to act well their part in society and in the business world."

To attain the highest type of citizenship, we must have teachers capable of developing character. A girl of eighteen, who will teach until a home is provided for her, has not the heart or desire to mould minds for futurity. The same can be said of the stripling youth who seeks a profession, with its rich emoluments,

and only awaits the time when he can quit the school and give his energies to more desirable things. We must have, as teachers, men and women full of zeal for bringing the best and highest out of their pupils, aiming to fit them to fill the best places in the nation's gifts. They must have soul for the work, and with a maternal yearning will bring to bear upon the plastic minds the great future and all its possibilities. To secure such teachers we must have strong, wise, hopeful trustees; men who when they find the teachers they want, will keep them, and will impress the fact upon the community that they possess a rare heart, a noble nature, a personality that cannot be replaced, and must be retained. Enthusiastic and ambitious trustees must ever be, even like Cæsar, willing to be slain for their ambitions, for we all know taxpayers carry many daggers. But by their dying, in a just cause, the community may catch their ideals, and may live. It may find out "that a gold dollar is cheaper in education, intrinsically, at a premium, than a silver one at a discount." The true trustee must be an idealist and a man of affairs; a student and a man of the world. He will keep in his mind a little better school than he hopes to obtain, "for he who aims his arrow at the sky shoots higher much than he who means a tree."

On a previous occasion (vide proceedings of trustees' section, 1904) I indicated, in my opinion, the kind of teachers most helpful to any community. I have not changed my beliefs; rather they have been strengthened. To have the best we must pay the highest; it will be the cheapest in the end. The ripest experience is always valuable, in teaching, as in any other occupation. But I want the trustees to be equally alert, strong, pure and honest. They should be the best men in the community; their duties must not end with employing the teacher and paying the salary. They must have a constant watchfulness over the work of the school, aiding, encouraging and impressing the teacher and pupils with the part they do, and will play in Canada's making. The ideal trustee will endeavor to surround the child with every influence that will be conducive to his welfare, and to withdraw from him every influence inimical to it. In play, in work, in debate, in morals, in culture, the trustees must lead the pupils in all that is true, noble and healthful. This is part of the responsibility of guardianship, of trusteeship. The field is as rich for trustee labor as it is for that of the clergyman or teacher.

ABLE TO STAND TRUE.

The visions before the young are good and true and pure. The coming years to them are full of joy and happiness. It is that faith and hope, born of good training and clear devotion to duty, will inspire them to still hold to the ideals set before them in school, and make them realize that the welfare of the nation is a part of their duty. They have had before them the wonderful things developed in the past years, and they will have the knowledge that to continue to advance, they must assume the responsibilities and help to perpetuate those things which shall make for the highest good. Education and refinement will, in the future, if taught in their right relations to happiness and nation making, assume their real place, now usurped by wealth, that of giving entrance to so-called "first classes," and to the "upper set."

SPECIALIZING TWO STUDIES.

In the developing of the idea of citizenship I strongly advocate the cultivation of those things which will add to the delights of home, to the right use of the hand and eye, and to placing labor upon the dignified plane it should occupy. Let me specify two now much maligned. Domestic science is the medium through which the ideals of home-making may be restored. These have been lost to a marked extent in these days by the readiness with which money can supply home needs, and the demands made upon the mothers by a mistaken view that society's calls and club associations must be first for place and station. Interest in home can be restored, for domestic science will interest the child, and she will carry this interest back to mother, and inspire her to restore many lost arts. Home-making is one of the real needs of this age. Canadians have not lost it but we stand in danger for the ideas of our neighbors are creeping in, and in large centres, the apartment house, and the club elements, the save trouble, the save labor tendency, are menacing the retention of the real home with its burdens, but with its thousand-fold joys.

Manual training is likewise valuable, as the mastery of attention to details and precision in work, develop elements of real manhood. Every boy should have a shop in the home, even at

the expense of a piano, or the latest style of candelabra, for a shop will make citizenship a richer reality; the boy is father of the man. I was fortunate in finding the following in Commissioner Levy's report to the Syracuse board, wherein he regretted the tendency of schools to magnify the idea of professional life and to relegate that of manual labor to the background. In his article he says:

"A nation abides through labor, not ingenuity. So manual training should be given a bold place in education. The honest mechanic is as helpful a member of society as the successful doctor or politician. The attention of the child should be directed to the honesty of work, rather than its kind. False worship and artificial respect for professional life should be banished."

"The educational authorities should reckon with the fact that the majority of men and women must walk the humble highway of mechanical labor. It is essential that they should respect their own handiwork; and until the teacher honors labor, we will not have children respect it. Even though it takes years of persistent instruction the child should be convinced that the master mechanic is as helpful a member of society as the successful member of a profession, that he has an equal right with the latter to cultural training, to hold high public places, to the company of art in all her forms.

"When the laborer shall be given in every way the same tribute, the same consideration, with the favored followers of professions, then democracy shall have triumphed in the school house as it has in politics and in religion."

THE CONCLUSIONS.

To sum up: Our schools should be the place where truth-telling, honesty, integrity will be taught, taught perpetually, and with the purpose of impressing the child that these things are the requisites in life. President Roosevelt has wisely declared that "unless there is a spirit of honesty in a man, unless there is a moral sense, his courage, his strength, his power, but make him a dangerous creature in our life—a man, whether from the stand-point of our social or political systems to be feared and to be hunted down. In civil life, the greater a man's ability, if it is

not combined with the moral sense, the more dangerous that man, the worse he is as a citizen."

We gloss over lying in politics and business, and that is where the real problem lies, to develop a race absolutely fearless in their love of truth. Every school and college and store and court and legislature should hold high the motto, "Tell the truth," in speech, in life, in relationship one with another. This simple lesson must be learned if our country is to stand forth and exemplify the statement, "righteousness exalteth a nation." With boys and girls taught the grandeur of honest, truthful citizenship we can depend on them for the future, and:

"Grave problems of state and the world's work await
Such boys when they grow to be men."

The true glory of citizenship is found in doing in a simple way the things that tend to righteousness. Blessed is the man who lives each day with the assurance that his life has been clean, his motives pure and his dealings with his fellows productive of helpfulness. Let the aim of life be high. Live

"To hail that season,
By gifted minds foretold,
When men shall rule by reason,
And not alone by gold ;
When man to man united,
And every wrong thing' righted,
The whole world shall be lighted
As Eden was of old.
For the cause that lacks assistance,
For the wrongs that need resistance,
For the future in the distance,
And the good that you can do."

THE CONDITION OF RURAL SCHOOLS AND HOW TO IMPROVE THEM.

W. H. G. COLLES, I.P.S., EAST KENT.

Before introducing the subject with which my name is connected upon the programme, let me say that I am quite sure that there are gentlemen here much better able than I to present this subject, but if I succeed in bringing on a discussion upon it, they will no doubt follow me with good effect.

I have endeavored to inform myself upon this subject, and I feel that my statements are as fairly correct as it is in my power to make them. Whatever I say is in accordance with my convictions, as a result of a long experience and information obtained from reliable sources. This paper was prepared before Dr. Pyne's Bill was brought in. Before suggesting remedies for the defects in our Rural Schools I must presuppose that reasonable financial aid is to be given to the several school sections, as proposed in Dr. Pyne's Bill. The legislative grants to public schools should be largely increased. Ontario rivals Russia in the matter of aid given towards the education of the people, and I think I am safe in saying that for some years past there has been far more given away to politicians than what has been expended upon the rural schools. The whole legislative grant to many schools is less than \$20, and to some it is even less than \$10 per annum. The Province is not supporting the Public School System as it ought. To neglect the Rural Schools is to overlook the country's most valuable asset. The sturdy strength of the nation is in the farmer's boy.

Improve the ungraded rural schools and make them what they are capable of being made, and there will be no need to abolish them for consolidated or any other kind of schools. The product of the ungraded school stands and ever will stand at the head of the class of the world's greatest men. The rural school pupil is left largely to his own resources and this is the secret of his future strength. Too much teacher is not good for the pupil, and that is why the graded schools with the apparent advantages of the

system fail to outstrip the schools in which the pupil is thrown upon his own resources.

The Legislative grants should be doubled at least, and the greater part of the moneys required for rural school purposes should be raised by a level rate on each township, say \$250.00 for each teacher employed instead of \$150.00 as at present. All grants should be paid upon the order of the Inspector, and only when the requirements of the Act and Regulations are complied with. Our Public Schools should be made the glory of our school system. "The nation dwells in the cottage," and we should aim to uplift the people in what may be called the humbler walks of life, to improve the condition of the 95 per cent., as well as that of the 5 per cent.; to improve the condition of the many and to increase their happiness as well as to place the few upon the ladder whose top is in the realms of professional fame. The doctor and the politician can take care of themselves; let us do justice to the dairy woman and "the man with the hoe." Even to-day many of these people are unable to mark their ballots as they would wish. All public school children should be taught how to mark their ballots as they desire, before they leave school.

My statements do not apply to any particular school or to any particular county, but to rural schools generally, so far as I have reason to believe that I fairly represent them. I must infer from the title of my subject as it was given to me, that I am not expected to deal with conditions that are approved, but with those that need to be remedied. The subject is so broad that to treat it fully would require a full week. I shall, therefore, touch only the more important points, under the following heads: (1) The Teachers. (2) The Curriculum. (3) The Accommodation, and (4) The Administration.

Regarding the teachers, I am safe in saying that they require better general scholarship. In their academic course there is too much "cram," too much jockeying to get them through the examinations in the least possible time, and therefore with the least possible amount of knowledge, and they come to the training schools and to their duties in the rural schools poorly informed in some subjects that they are required to teach and absolutely unacquainted with others.

Raising the age limit to 18 had a good effect, and if the limit

were made 20 years of age the standard could be still further raised and the scholarship would be much better. The candidate who is fortunate enough to fail on his first examination and who goes over the work a second time is always better qualified than he who got through on the first trial. It is time that the standard of the non-professional examination were raised.

The professional training of teachers should be more practical. Each student should be required to spend six weeks in actual practice in an ungraded school designated by the Inspector, and under the direction of the Principal of such school. The young teacher would, in this way, get some practical knowledge of his business before being placed in charge of a school, and this would be of more practical use in the school room than an expert knowledge of all the works on psychology ever written.

But what appears to me to be a greater defect in the operation of the Normal Schools is that they do not discriminate between the efficient and the inefficient teachers. Practically they license all, good, bad and indifferent.

During the last three years the three Normal Schools licensed 97 per cent. of the students. The London school passed 93 per cent., the Ottawa school 96 per cent., and the Toronto school 100 per cent. of all their students.

If these schools had passed say 70 per cent. and rejected the less apt to the extent of 30 per cent. of the whole, they would have done a much greater service. The profession would not have been overcrowded, salaries would not have reached the border of the ridiculous, and the brighter and better talent would not have been crowded out by inferior teachers who are willing to underbid others and accept salaries proportionate to the aptitude.

To this it may be objected that it would be unfair to the student to be allowed to attend and receive training for a year and then be told that he or she has not aptitude to warrant his being licensed to teach.

But the duty of the State is to the people before the individual. It were better that the inapt be sent back to seek some calling for which he is adapted and in which he may achieve success, than to launch him upon a business in which irreparable injury may be done to others and in which he would never win any distinction.

Again it may be argued that these candidates have the endorse-

ment of the Model Schools, and of the Inspectors, after one or more years teaching, and that if there is to be any such discrimination it should be made by the Inspectors before they are admitted to the normal school. It is an ominous fact that this is so rarely done. There must be some good and sufficient reasons for this. In the first place it would be denying the student the right to try, and pronouncing him a failure without giving him the advantage of skilled training, and before he has actually failed. If normal school training actually improves teachers, might not the inapt teacher be trained into success?

Again the Inspector is not always in such an independent position that he can act fearlessly according to his judgment. Suppose the Inspector say to an influential person or to the influential person's friend, "Your daughter is not fit to be a teacher," it is so natural and so easy for this person to say to his colleagues, "This man is not fit to be an Inspector," and his successor in office will be more wise and prudent and the teacher will be recommended and will get to Normal school.

You have heard of the man who put his fingers in the horse's mouth to find out how many teeth the horse had, and the horse closed his teeth hard to find out how many fingers the man had. The Inspectors ought to be, as Normal School Principals are, beyond the reach of personal vindictiveness, if they are to act for the good of the State, according to their convictions. But even as matters now stand, Inspectors could be required to send to the Minister a confidential report on each candidate, stating the degree of aptitude that each has shown in his work instead of an absolute approval or an absolute condemnation, and let the Normal School Principals, after training and trial, finally pass judgment upon each, licensing the more efficient and rejecting the weak.

The final Professional examinations should be competitive, so as to encourage the kind of teacher that is now leaving the profession, and deter those who would enter upon a business that they are not adapted for, to the exclusion of who would be eminently successful in the schools. It is the inferior teachers that are crowding out the good.

Our teachers are deficient in experience. That means that we do not retain our teachers in the profession. It is proposed to retain them by fixing minimum salaries of \$300.00 and

\$400.00. In some Counties the average salaries are higher than the proposed minimum, and still the progressive teachers are dropping out, either to enter other occupations or to go West, where salaries are nearly double those proposed. The class of teachers that such salaries would hold is not the class that we are anxious to retain. It is the teacher that makes the maximum salary that we want and not the kind that is willing to minimize the minimum.

Do not imagine that fixing such minimum salaries will tend to keep the men in the profession. It will tend rather to crowd them out by drawing greater numbers of women into the business. It is a measure that will cut both ways. Some Boards no doubt will reduce the salaries to the proposed figures. When a rate of payment is fixed by law, even as a minimum, you rarely see a corporation paying a higher rate. I approve of the new idea as compared with the old, but it is not perhaps all that could be done.

Another strong inducement, especially to men, to continue in the work, would be a good system of superannuation. A wise Government will think twice before committing the country to a system of superannuation where the beneficiaries are apt to be numerous and their contributions to the fund trifling. The late Premier was far-seeing in the interest of the public chest when he abolished compulsory payment to the Superannuation Fund, because the payments to the fund were small and the burden would fall upon the Province. But the change he made severed in many cases the link that bound to the Province the service of the experienced teacher. But with the prospect of better salaries there is no reason why each and every teacher who uses the business, either as a life occupation or as a stepping stone to some other, should not pay annually to the Superannuation Fund a considerable sum to provide for those who wear themselves out in the harness. This would not be an unreasonable duty to impose upon those who obtain their training at the public expense. A good superannuation system would be worth paying to and worth looking forward to, and with reasonable assistance from the teachers themselves it could be placed upon such a basis as would make it safe for the Government to carry. Or let the teachers of the Province take the responsibility and let the Government assist to a fixed extent.

The late Government urged the building of teacher's residences in connection with rural schools, as an inducement to teachers to continue in the business, and then by robbing the public schools of every mature pupil in order to multiply and expand the high schools, and by turning out from these high schools a legion of immature teachers, the conditions were made such that a married teacher would starve to death in the much advocated teacher's residence. But now that we are to have Continuation Classes encouraged, the public schools should recover some of their former strength and male teachers will be required. With due discrimination in the licensing of teachers, the salaries will become large enough for these people to live upon, and with a decent Superannuation system and a better system of administration to protect teachers from the indignity of unjustifiable dismissal, there will come again, please God, a re-inhabitation of the tenantless teachers' residences and the manly influence, as in the good old days, over the farmers' boys.

But fixing minimum salaries of \$300 and \$400 will be of little avail while teachers can get professional training at the public expense and then go out West and accept positions at a minimum of \$600. There is and always will be a demand for several hundred teachers in the North West, and if our normal schools are used to train teachers for other provinces, there will always be a dearth of teachers for our own. We should reserve the places in our normal schools for those who will remain in our schools for a reasonable time, if they wish to teach. There is little use in brewing medicine for a sick man, in a kettle that leaks so fast. Another condition of our schools, that needs to be remedied, is that persons afflicted with tuberculosis are allowed to become teachers and to be confined in badly-ventilated rooms with our children. In no class is death from this cause more common than among teachers, so that to admit a consumptive to the profession is fatal to the teacher and a decided menace to the health of the children, and there is no legal provision by which such persons may be rejected. I saw a young man licensed by a County Board, after passing the Model School examination, and he died of tuberculosis within six weeks thereafter. I knew of a lady who taught for fifteen years and up to a few months before she died of this disease. Her practice for some years

before she died was to lay her handkerchief on the hot air register in the school room to dry, after it had become saturated with sputum, and thus the germs of the disease were wafted directly into the lungs of the children, for hours at a time. God only knows how many untimely graves will be filled as a result of this. Tuberculous persons should be debarred from teaching, and further, all teachers should be periodically examined at the expense of the State, and those only who are free from this disease allowed to continue. Philanthropists are trying to relieve consumptives, and it is the duty of the State to take proper precautions to avoid sowing the seeds of the disease. A Specialist should be appointed by the Government to examine all candidates for certificates and perhaps also every three years those engaged in the schools.

Closely allied to the qualifications of the teachers is the nature and extent of the Curriculum. This was at one time a limited but wholesome bill of fare providing for the teaching of Arithmetic, Reading, Spelling, History, Geography, Composition, Grammar and Writing, with Euclid, Algebra and Book-keeping in the higher classes. Then the time for Reading was split up to make room for Literature, and Reading has suffered proportionately. Music also was added, but as the teachers had never learned Music themselves the subject was never well enough taught to be of much value, though there was some considerable disturbance of the other subjects on account of it. Physiology also was put on, a subject useful in a way, but of course the other studies must give way a little to make room for that also. Then Temperance was put on. This was largely a concession to the desire of the people who champion the Temperance Cause. Some one else thought that Drawing was a good thing, and that too was added. But as no one knew anything about Drawing, the subject only took in spots, so to speak, and to-day even it is more a machine for destroying what are known as Drawing Books than anything else. Since the subject is not on for the Examinations, the teachers know little or nothing about it. This applies to the drawing for the Primary classes only. In the Rural Schools the subject cannot be said to be taught, except by courtesy, though time is spent making crude copies of figures in the Drawing Books. Then it was thought wise to have the young lady teachers instruct the farmers' children in Agriculture, and the poor old curriculum

must further expand to make room for that subject. This was a compliment to the farmers. But the teaching of the subject is, to put it mildly, not uniformly good. The Misses from town, who teach these farmers' children, have doubts as to whether the drain tiles that they use in the hall, hand painted, as racks for umbrellas, should be set vertically or horizontally in the ground. The latest addition to this curriculum is Painting, a most delightful art, but whence the teachers are supposed to draw their inspiration hath not yet been said. They had not heard of it before. And now, having exhausted all the subjects on earth, the curriculum makers have turned their gaze heavenward, and Astronomy is added.

Now, with all these new subjects on the curriculum, what is to become of what might have been called the essentials? It is said that the new cell growths in the body continually push off the older ones, until in about seven years the former body has entirely disappeared. May not the same be said of our curriculum? If the teachers knew the subjects latterly added, and taught them, would it be possible for them to find time to teach the former subjects thoroughly?

I read with much interest the explanation given by Mr. John H. Laughton last year as to how our curriculum came to be so congested. He said, "Its composition depended upon the pull which each of the faddists and specialists had with the powers that be." I have wondered how Mr. Laughton found this all out.

To my mind there is not a fad among them all that is not harmless in itself, and indeed each has a distinct educational value. But the trouble is that there are so many of them that they cannot all be taught without impairing the teaching of the essentials of a public school education.

The remedy that I propose is that the curriculum for Rural schools be simplified and that all candidates for teachers' certificates be required to pass their examination in every subject on the curriculum, every such subject being upon the course of studies in the High Schools. No new subject should be placed upon the curriculum of the Public School unless it has been previously placed upon the High School curriculum and made an examination subject for teachers' examinations. Notice also should be given to those engaged in teaching to prepare themselves to teach such new subject.

Some may argue that I am wrong about the teachers or about the curriculum, but the fact still stands to confirm what I say, that after passing through our public schools a lad cannot fill a place in commercial life without going to a Business College to learn to write, to spell, to keep accounts, to compose a business letter, and to learn commercial arithmetic. It is impossible to teach these subjects thoroughly when the time is divided among so many subjects. Let the pupils be given the essentials of a good business education and be taught to read well and to love reading, and place within their reach useful books, and each will acquire a knowledge of what his nature and inclination have best adapted him for.

I would keep upon the programme, reading, spelling, writing, book-keeping, grammar, geography, arithmetic and composition. And I would be very careful that these were not crowded out by the subjects nature study, calisthenics, music, history, hygiene, drawing, temperance, painting and astronomy.

One other subject however, I would have taught in the schools, namely, the Word of God. The formation of character is the most important element of education, and the Bible is the foundation of character. Hitherto this has been kept off our curriculum because of denominational differences and because of want of consideration for others on the part of those who advocated it, but this body of men before me can accomplish this most worthy object because they can approach it in a businesslike way. Let the Government appoint a committee of men from all Christian denominations to prepare a series of lessons to be read from the Bible, and a small text-book of questions and answers upon the lessons read.

The objections made against introducing the Bible are more imaginary than real. When the Bible or the New Testament used to be in every public school there was not an objection heard. The Bible has gone out of the schools through neglect, being crowded out by the continued additions to the curriculum.

Now as to School Accommodation:

Our rural school houses and the surroundings are not at all as good as they ought to be. The grounds are not neatly fenced nor well kept. The offices are rough and in many instances exposed and out of repair, and in most instances they stand stark

and unlovely in the rear corners of the school yards, affording little privacy, and being anything but a pleasing feature of the situation. The grounds generally are unattractive. The children in many of the schools are too small to keep the place in order by cutting weeds, mowing the grass and making flower beds. A larger lot in the same condition would mean more weeds. There is not always a good well. The wide surface well is apt to be a receptacle for dead frogs, toads, mice, crickets and other vermin, that fester in the stale water.

Now as to the remedy for this:

Let the law be imperative that the present barnyard fences be replaced by neat iron or wooden picket fences at least in front of the school lots, and that the dug wells be replaced where possible by artesian wells, so that the water may be free from pollution and ever fresh and pure.

Let each school section be required to add to their grounds one or two acres, to be strongly fenced and planted with native trees of every kind, to form a grove where the trees may be preserved and studied and the native birds encouraged to nest and sing, and where the children would love to play and swing. There is no scarcity of land in this country. Why should not every rural section have its school grove?

Every school room should be properly ventilated and provided with furniture and blackboards of good quality. Make the library an essential of school equipment, to be provided and maintained by the trustees. The present method of putting the burden upon the teacher is as precarious as it is unreasonable. A suitable person should be employed and adequately paid to keep the premises in good order and the school room really sweet and clean, a service that is often neglected now.

This leads to the question of Administration:

That the above named conditions are essential to good school-keeping is beyond dispute, but how are they to be attained? The present system of leaving these matters in the hands of three trustees has had a long and patient—too patient—trial, and it has largely failed to accomplish the purpose for which it was intended. Good laws and regulations are useless without an executive power to put them into operation, and as the present administration after almost a century's trial has failed to estab-

lish the condition of affairs that is desired, it is necessary that some different system of administration be tried.

It is quite true that there are some excellent Boards that take an interest in their school and go as far towards ideal conditions as public opinion will warrant, and if many of the requirements were made compulsory instead of optional they would gladly provide them. But in too many instances trustees are elected to run the school as nearly upon nothing as may be possible, and they certainly have been making some startling records at it, so that the system, instead of being effectual in promoting the improvement of the schools, has in too many cases been more of a hindrance to them. Their motto is not "Improve the School," but "Keep down the Tax Rate," and this is all too apparent in the policy adopted in the engagement of the teachers and in the building of school houses. Too often the Inspector is purposely avoided because it is known that he would urge the provision of modern features in the building, that would add to the cost. Ventilation is left out because it might make the building harder to heat and cost more for fuel. Too often, when a teacher is to be found, instead of consulting the Inspector as to where to get the most efficient, the policy is to advertise for the cheapest. Fifth class pupils have been forbidden to attend the schools so that a cheaper teacher might do for the rest.

So, too, under the present system, the teacher's position is not secure. If the relative of a trustee wants the school, that trustee has only to get the consent of one man and the thing is done, and too often the deserving teacher receives notice of dismissal to make room for the other. So also a teacher often finds difficulty in managing some troublesome boy whose father is a trustee, or rather finds trouble after having managed the boy. But too often the trustees have no children attending the school and are elected purposely to prevent the expenditure of money upon the school, with the inevitable result that the conditions are not what they ought to be.

How is this condition of chronic penury towards the school and frequent unfairness towards the teacher to be overcome?

Township Boards have been tried and the experiment has not made a good impression. I think, therefore, that we must look for help from some different source.

Consolidated Schools, although the system as compared with the ungraded school system, would afford material for some very evenly balanced arguments, which would be out of place here, would no doubt improve conditions in some respects, but the general adoption of that system is at best too remote to help matters even in the near future.

For the improvement of the schools, in the meantime, I suggest as follows:

(1) That all future legislative enactments be framed with a more decisive tone. There has been too much timidity in framing the school law and regulations. The word "May" is used where the word "Shall" would have secured improvements that are now wanting.

(2) That no grants from any source be paid to any school board without an order from the Public School Inspector, and that the Inspector be absolutely forbidden to issue such order until the requirements of the law and regulations are complied with, unless the sanction of the Minister be first obtained. In order to protect the Inspector in the impartial discharge of his duty, his removal from office should be made subject to the assent of the Minister, and an appeal to the Minister against the decision of the Inspector also provided.

Inspectors should have the support of the state, like other public officers. The Judge, the Magistrate, the Policeman and the Poundkeeper are all backed by authority, but the Inspector is practically left without any power behind him except the remnant of an almost extinct superstition, and the fact that the Inspectors have accomplished so much for the schools, under these conditions, is a monument to their personal qualities and their personal influence, and speaks volumes for their faithfulness and devotion to the interests of the children.

(3) That the County Board of Examiners, as at present appointed by the County Councils, should have the scope of their duties increased so as to include the engagement and removal of all teachers within the rural school limits of the county, and the determination of the salary of each, within certain limits, in accordance with the assessment of the sections. Also the power to prevent the construction of any school house that would not conform to approved conditions.

(4) That the present Rural School Boards be enlarged so as to insure the representation upon them of persons having children attending the schools, and therefore directly interested in the welfare and efficiency of the schools.

This could easily be done by electing annually two trustees, under the provision that one of the two must be a ratepayer or the wife of a ratepayer having one or more children attending the school. Thus both classes, those using the school and those not directly interested in its efficiency, would have equal rights as to election, but the representation, upon the board, of three who have children attending would thus be assured.

This would make a board of six trustees, and in case of a tie the casting vote to be given by the highest ratepayer having one or more children attending the school.

Some of the advantages of the change proposed would be:

(1) It would insure the school from being run by two men who have no interest in its success, and whose only purpose upon the board it to keep down the tax rate, and would prevent the school section business being transacted over the top rail of the road fence, as one trustee passes another's place.

(2) It would extend more widely through the section an interest in school matters, and as a result the annual meetings would be better attended.

(3) It would give to those who would act for the best interests of the school the moral support of numbers. Under the present system the one trustee fears the censure of the ratepayers if by his casting vote he causes the expenditure of money. The larger board would divide the responsibility among a reasonable number.

(4) It would remove the reluctance now felt towards serving on the board of trustees as at present constituted.

(5) There would be less danger of nepotism, with the larger board. As matters now stand one man has too much power. By gaining the co-operation of one other he may bring about an abuse of power.

(6) It would make the teacher's position much more secure, as is the case in town and village schools now, where the boards consist of six or eight trustees. This would greatly tend to retain the experienced teachers in the profession.

(7) It would make an opportunity for women to act upon the

board. Women attend better than men to matters of detail. The school rooms, for instance, would be kept cleaner. The women would visit the school when men have not time.

(8) This change would not deprive the ratepayers of any right or privilege, but rather it would extend the present privilege to a greater number, and it would not cost anyone a single cent. It should therefore be a popular measure and consequently meet with approval in the legislature.

(9) It may be objected that this method would require the time of six persons to do what could be done by three. I answer, Better to take the time of six to do something, than the time of three to do nothing. If greater efficiency and a more satisfactory condition of school matters can be thus secured the time will be well spent.

To summarize then. The remedies that I propose are:

As to Teachers.

(1) A period of practical work in an ungraded school for every teacher in training.

(2) That the standard of the non-professional examinations be raised.

(3) That a large percentage of the poorer material be rejected, or given certificates for a limited time, only in case of a scarcity of teachers. A distinction should be made, if only in the class of professional certificate.

(4) The exclusion from the profession of all tuberculous persons.

As to the Curriculum.

(1) That the Curriculum be simplified so that the essential subjects may be more thoroughly taught. The less important subjects might be made optional.

(2) That candidates for teachers' certificates be required to pass an examination in every subject upon the curriculum.

(3) That Bible Study be added to the curriculum.

As to the School House and Premises.

(1) That fences and offices be radically improved.

(2) That good ventilation and pure water be procured.

(3) That cleaning be done more frequently and better.

(4) That at least one acre be added to each school lot and be planted with specimens of all our native trees. What a glory

these school groves would be to our country in years to come when every other forest tree shall have been destroyed.

As to Administration.

(1) Place your Inspectors in a position to have the school policy absolutely carried out.

(2) Have a County Executive to carry out important measures.

(3) Increase the number of trustees so as to admit of having three upon the board, including women, who have children attending the school.

RURAL SCHOOLS AND HOW TO IMPROVE THEM.

JOHN H. LAUGHTON, Parkhill.

When I received the intimation from our President that I was elected to present the condition of our rural schools to you, and also to suggest how to improve them, I was inclined to refuse, as the subject seemed to be so large and of such a wide range, owing to different conditions in different sections of our Province, but on further consideration, I consented to take up the question as I find it. I trust that what I fail to do, our friend Colles will make up for, and that an earnest criticism of both papers will lead to improvements where needed.

In approaching the question as to the present condition of our rural schools it would seem to take considerable nerve to say anything in their favor after leading men in educational institutions have passed sentence on these schools. You will remember that, at our 1904 meeting, Dr. Merchant said our Public Schools and our Public School Teachers are deteriorating; Prof. McCalum, in addressing the Canada Club at St. Catharines, said our whole educational system was below the standard, and that our Public Schools are not what they were thirty years ago. The Bank of Commerce sent to Britain for 40 young men to take junior positions in their Bank. Again and again we hear even judges on the bench declaring that our schools are wrong, morals are not inculcated as they were, juvenile crime is increasing, schools under the control of weak-minded girls can not help but result in these conditions,—and I could continue to quote to you remarks of this kind for hours, but will not do so. The question arises, Are these statements true? My answer is NO! They are entirely false, and in making this statement you will bear in mind that I am speaking of the Rural Public Schools. True, they are not what they were thirty years ago, for the Public Schools of those days took up and gave all the education that is given to-day in Public Schools, High Schools and Collegiate Institutes, and will any person stand up to-day and say that the education of to-day as combined in our Public and High Schools is not as good as given in the schools of thirty years ago? I think

that any man who would make such a statement is not capable or competent to fill any prominent position in our Canada of to-day.

The statement that our schools are under the control of weak-minded girls is uncalled for, and the man who made it ought to be ashamed of himself, and what a nice tribute it must be to the manly men who are the Prineipals of our High, our Model, and our Normal Schools to have it said that girls who spend about six years under their manly tuition and example should turn out to be weaklings. Surely, if these cruel statements are true, it must be the men who are detoriorating, and the sooner we change them the better.

You will pardon me reciting a little incident which occurred at that memorable meeting when the General Association, by a large majority, decided to make Latin complusory in the Lower School in a moderate degree, on which solution we were snubbed by the Government of the day refusing to grant our request. Mr. Merchant was speaking against the resolution and blaming Latin for the detorioration of the Teacher and the Schools. A teacher who sat behind me whispered, "I did not detoriorate in the Public or High Schools, and if I did any place it was when I fooled away my time studying snakes, grubs, rabbits, Guinea pigs, and Nature Study with Merchant and Dearness instead of learning to teach the essentials."

Perhaps the teacher was right. My own opinion is that the boys and girls of to-day are just as clever, if not more clever, than their parents were at the same age. The opportunities are better, the schools are better equipped, the teacher is better educated, and the teaching is better; and no one who cares anything for his reputation can deny it.

The present condition of our Rural Schools under such an elastic curriculum is one that calls for an inspector who can not be carried away by fads and frills, but who will see that the essentials are well taught, and new work introduced only where there is extra time. He should be supported in this by the trustees and the teacher, for in the country the boys and girls know all about Nature—it is part of their every day life. The girls learn from their mothers to sew, to knit, to darn and to bake. The boys have all kinds of manual training, and while at school want a thorough training in the essentials. Does this condition exist?

Well I can only speak for West Middlesex, and I can say it does. Our Inspector, Mr. Johnson, hews to the old line, and I am led to believe that the same condition exists in other rural schools. The fondness for the many fads seems to grow more in the cities and towns, where the parents want to throw the child in the teacher's care from the time it can walk until he is old enough to do for himself. I think that if the parents assumed the part they ought, and did as much for the morals and education of their children while they are in their charge, as is done by the teacher in the five hours they are in school each day, we would soon arrive at our ideals.

I wrote to Mr. B. E. Walker when the Bank of Commerce imported the 40 boys. He said the press was making too much of it, but he had found that while the boys in Canada had a broader education, yet they were not so well grounded in the essentials. Why is this? Some say it is because the curriculum is not definite enough; others say it is because changes occur too frequently in text-books and in the modes of teaching. I am sure this has been the case in writing, with first one slant, then another, the result being that most children have to learn to write after they leave school. Muscular writing should at once be adopted, headlines in copybooks done away with, and writing taught from the blackboard.

How can we amend our Rural Schools? The first amendment and the most essential one is to produce more children, because schools with 8 to 15 scholars in 9 classes have not much material to work on. Up to the Fourth Form, I cannot suggest any improvement where conditions exist such as I have described, viz., where essentials are well taught. For advanced work, if conditions are as Premier Whitney states, that 90 per cent. never go to High School, it would seem necessary to take action, and as far as I can see there are only two ways to meet the matter:

1. Raise the qualification or Entrance to High School.
2. Provide Consolidated Schools, or consolidate schools for Continuation Work.

Under our present system the entire educational programme seems to be carried on with the one object of providing candidates for High Schools, Collegiate Institutes and Universities, and if Premier Whitney is correct only 10 per cent. of the population benefit by this system. Persons ask why it is continued.

Why are we not provided with an educational system that will turn out graduates from our Public Schools able to transact the affairs of business and commerce? My own opinion is, that as long as the Educational Council or Advisory Board consists of a majority of Professors of our Universities, no improvement can be made. In order that Public Schools should get their rights, the Advisory Board should consist of men chosen from the Trustees' Association, Public School Teachers, and Public School Inspectors, with a minority representation from Universities and High Schools.

The ground work of our Educational System should be a thorough training in the Public Schools in the essentials, which would fit our boys and girls for any position in the business world. Such a qualification should be sufficient to allow the per cent. who want to go into the professions, to attend any of our Universities. I have always contended that the Universities can look after themselves, and the persons who should be consulted in Public School matters are those who are directly connected with the work, viz., Trustees, Teachers and Inspectors. No real advancement will take place until this state of affairs exists.

As I have previously stated, there seem to be different opinions as to the present condition of our Public Schools, but I am confident that all will agree that the following conditions will improve the standard of our Rural Public Schools:

1. An Advisory Board, the majority of which will consist of Trustees, Public School Teachers, and Public School Inspectors, the minority to consist of High School Teachers and Representatives of the Universities.
2. Public School Inspectors who will insist on a thorough grounding in the essentials.
3. Normal Schools that will train teachers to teach the essentials, and not waste time on fads and frills.
4. A curriculum for our Public Schools that will provide for extended work, and the entire work to be such as will provide our children with an education that will qualify them to take any position in the business world on graduating.
5. Regulations that will make for a higher qualification in the Teacher and a decent salary.
6. Better ventilated schools, brighter interiors, well-kept grounds.

7. Text-books to contain such matter as will make each student conversant with the resources of our Province and our Dominion.

8. A Flag Pole on every school, or in the grounds, from which should float a Dominion flag; the children should be taught that Canadians not only possess all the qualities which are represented in the crosses of St. George, St. Andrew, and St. Patrick, but that the plain red ground on which these crosses are placed represents a brave and true people, and a people who will be the most intelligent, ambitious, and prosperous people in the world if given a proper Public School Education.

Trustees, you will notice in the new Education Bill that my proposals in regard to an Advisory Board do not exist. The Trustees are not to be consulted; we, who are directly selected by the people, holding in trust the future of the children of this Province, are again being snubbed. Surely this is an error; if not we should demand representation at once. We consider our trust is not only to direct and carry out the regulations, but it places us in a position in which we should be consulted in making the regulations.

Dr. Pyne told us, at our last meeting, that he would always avail himself of our expert advice: "To you as Trustees it pertains to direct the Teacher's energies along the right lines, in order that our children may be educated sensibly and in a manner suitable to their surroundings."

Gentlemen, let us demand our rights. The late Government snubbed us on the Latin question and have gone to their reward; surely their successors, who are trying to improve our system, will not commit a similar error.

Whitney, Pyne, and Public Schools to be successful must consult the Trustees.

CONTINUED EDUCATION BY MEANS OF FREE LIBRARIES AND KINDRED INSTITUTIONS.

L. K. MURTON, B.A., Oshawa.

Perhaps in introducing this subject a few minutes may be profitably employed in considering the preliminary question, is continued education necessary? In other words, Do our public schools, high schools and universities, now educate the people sufficiently?

That something short of perfection has been attained, is suggested by the fact that of the fortunate few who have availed themselves of the help of all these and passed successfully through their prescribed curriculums to a university degree, some find it profitable to take postgraduate courses abroad in special branches of learning. We have been accustomed to look with pride upon our educational system composed of the three links, the public school, the high school, and the university, but is it not true that the chain from beginning to end only leads up to a wider and deeper general reading in almost every subject? Instead of considering such a course of training as a finality, we should look upon it rather as a preparation to widen one's outlook and steady one's judgment, so that subsequent specialization in any department of learning may be done with a knowledge of the bearing of the particular part, upon related parts and upon the whole. But if this is true, even of university graduates, what shall we say of the condition of the many?

Without wearying you with figures, even a cursory examination of the statistics of population of school age (from 5 to 21 years), in this Province and the registered number of pupils and their attendance, will show that while 90 per cent. may receive some education, the average attendance is but little over 50 per cent. of the school population, a condition of things which, by the way, contrasts very unfavorably with the almost perfectly regular and full attendance secured in the schools of Germany, that most thoroughly organized and disciplined of all the great nations.

Then our own observation, as well as the statistics, shows us—and indeed it is a matter of common knowledge—that only a very small fraction of the school population passes through the whole public school course, so that the education received by the vast majority must be of the most elementary kind, such only as is provided in the lower forms of the public school.

Do we not owe the enormous increase of wealth, in modern times, with all the added comforts, conveniences and pleasure it supplies, largely to the greater saving effected by organization, by improvement in industrial methods and processes, and the making useful and profitable by conversion into by-products, of material which was formerly disregarded and cast aside as worthless? This is true of all our greatest sources of wealth, the forest, the farm, the fisheries, the factory and the mine.

But since its men, far more than its mines, constitute the wealth of a nation, how much more important is it that there shall be no waste of men, none who are not by thorough education and systematic instruction, made and kept productive of national wealth to their utmost capacity, consistent with individual liberty and happiness.

Public control of education recognizes a public necessity, which constitutes a public duty; and when we see how many pupils in the process of education, are dropped out and cast aside at every point all along the line of public school, high school, and university work, and how very, very few, are turned out as the finished product at the close of the process, we must begin to realize that we are following very crude and wasteful processes of manufacture, if none of this cast away material is taken hold of and made into such by-products as it may be best fitted for in order to minister to the common good.

Has our educational work in this country been thoroughly organized and developed where such enormous waste exists?

Does it not appear that the School System is only a beginning, a nucleus, from which the educational work of the nation is to be developed; and does not the vast importance of subsequent education, in all forms, and by all means which can be devised, grow upon us as we consider it?

There is a lesson for us in the titanic struggle for the preservation of her industrial and commercial supremacy in which mother England is now engaged with Germany on the one hand and the

United States on the other. England has largely neglected technical education, while Germany has during the last thirty years cultivated and carried it to such a high degree of perfection, through governmental organization, support and control, that its influence has been felt in every line of industry, until the label "Made in Germany," required by English law to be displayed on all importations from that country and intended as a brand of inferiority, has now become throughout Britain the hall-mark of perfection. The United States, too, has been supplying England and her colonies with machine tools and with electrical apparatus for their street railways. So that in these days of sharp competition and small margins, where all are in the struggle, that nation which most fully realizes the transcendent importance of so thoroughly training every individual in her industrial army as to enable him to produce the most of the best quality, design, and finish, in the least time, and at the smallest cost, will surely gain the supremacy.

These are in part the commercial considerations for following our young men into their workshops with our plans for supplementing their defective education with those things which in the actual test of real life they find that they most require, and which, through either lack, or neglect, of previous opportunities, they have failed to acquire.

But we must consider, too, that in the great realm of moral forces "No man ever lives to himself," and that character, in each of us, is a force, that for good or evil, is perpetually touching all other characters; that a fearless, upright soul reinforces goodness in every soul it touches, while an evil man radiates wickedness, taints the general conscience, and makes goodness harder, and evil easier for every one about him.

So a brain left untaught, a conscience unquickened, a faculty undeveloped, a want unfed, represents a loss which makes the nation, and every member of it, poorer; and if we agree with Herbert Spencer that "To prepare us for complete living is the function which education has to discharge," we may well ask has Modern Civilization done her duty by any man for whom she has not sedulously provided means and opportunity to qualify him for this complete life; and is not the very existence of a criminal or a pauper presumably a reproach to her and to be considered an evidence of such selfish neglect, want of organization, and

weakness as to justify these lines of William Blake, the English poet:

“A starved dog at the City’s gate,
Foretells the ruin of the state.”

Let us then consider some of the practical means to be employed in this supplemental educational work, the necessity for which has come to be widely recognized in this Province.

While not wishing to depreciate the work done by private enterprise, or established upon foundations due to private benevolence, this paper is based upon the idea that in a democratic country such as ours, universal education must necessarily form an organic part of our whole political and social structure if we would secure stability. The control of it by the Education Department of the Government is a necessary sequence; and whether we should make Toronto University, or the Public Library, both of which are Provincial institutions, the centre of the extended educational movement is a debatable question. It is suggested that the Public Library would, at first, form the better point of control on account of the greater elasticity in the adoption of new methods, under such a separated control, and the greater facilities which it would afford for gathering together and bringing into harmonious co-operation the minor agencies which now exist or may, from time to time, be established. We now have a lot of public libraries in the cities and towns of the Province without any effective central control or bond of union. They are independent local organizations receiving government aid and local rates, and, in most of the smaller towns, with untrained librarians, and under the control of boards composed of business and professional men having “A zeal which is not according to knowledge,” so far as twentieth century library methods are concerned. The government inspection of the past was worse than nothing, because, while of little help, it served to conceal the fact that these bodies were being left to work out their own salvation and were simply doing what seemed good in their own eyes. The great Central Provincial Library which should at once be established in Toronto, would create an entirely different state of affairs. Besides being a great reference library, and also the source of supply of a system of reference library, and also the source of supply of a system of government travelling libraries, it should be the headquarters of a Provin-

cial Director of Public Libraries and his staff, who would have charge of all the public libraries and all the Government's supplemental educational work. Should such an appointment be made, and should the Government be so fortunate as to secure the services of a man like Melvil Dewey, of New York State, the mighty stimulus of his influence would soon be felt throughout the Province, and in a twelvemonth's time we would look back in wonder at the period of lethargic stupor which has so long prevailed in Ontario, respecting adult or home education. We may well study the admirably organized systems now in operation in many of the States south of our border, and notably in New York State; and while giving our cousins all due credit for philanthropy, we may shrewdly conjecture that their money, invested in this great work, has not been so placed in the absence of a well-founded conviction, that, directly or indirectly, it will pay a big return.

Now let me refer to some of the features of the Libraries Department of the University of the State of New York, which, subject to modification, may give us suggestions for application in this Province:

It has charge of the State Library, the School Libraries, Public Libraries, the Library School, and Home Education.

The Library School provides a two years' training course for librarians, and none but College graduates who have exhibited special fitness for the work, are received for this training. The graduate from it, ranks, in salary and position, with head masters of high schools.

The Libraries Department has charge of the University Extension Work for the state, as part of its system of Home Education.

This work of University extension, the idea of which originated with the English Universities of Oxford, Cambridge, London and others, is carried on by means of:

(1) Courses of six or twelve lectures delivered one every week or every fortnight by University Professors or other qualified persons.

(2) Outlines of lectures, called syllabi, including references and suggestions for study, are distributed among those who attend.

(3) Before or after each lecture, the lecturer conducts a class for discussion and to answer questions.

(4) Home reading, and the preparation of papers on the subjects covered by the outline lectures.

(5) Local examinations, conducted by the University or other center, with a provision by which complete and satisfactory work in the extension course is rewarded with a certificate entitling the holder to credit toward the university degree.

(6) Travelling Libraries of appropriate books are, during the progress of the course, sent out to the local centre by the Home Education Department.

(7) Study clubs, in connection with the extension courses, and Reading Circles, for the guidance of students—reading between lectures, are often formed.

It has been found that a series of related courses, extending over several years, produces the best results; and the subjects usually taken up are history, literature, political economy, art and natural science. A local committee has charge of the business management, of advertising, selling tickets and providing the hall.

Chicago, Harvard and Columbia Universities have now established Summer Schools as part of their extension work; and Chicago University has been foresighted enough to also incorporate the Correspondence School idea into its work. It is worthy of remark, however, that these two great educational ideas were only taken up by the universities after their practicability and great utility had been demonstrated by private enterprise.

Summer Schools, of which that at Chautauqua is a type, nearly always include a course or courses of popular lectures, often somewhat superficial, but always stimulating in the treatment of their subjects, and usually, also, class-room courses, in which the work is more thorough; and while the minuter details of a subject are disregarded, there is a successful effort made in them, to impart a broader, more comprehensive view than can be obtained, in the same time, by ordinary methods of study. None but those who are really interested, and strongly desirous of improvement, attend these class-room courses, and there is a sympathetic contact with their fellow-students, and with the teachers, which evokes a high degree of enthusiasm. The presence, also, as at Chautauqua, of the element of amusement, near at hand, and furnishing means of restful and pleasant diversion, prevents any weariness or monotony, with resulting distastes for study. There is, too, perfect freedom of choice of subjects; and each individual supplements his education, just at the points where he feels such an improvement most needed.

Correspondence Teaching, however, while inferior to that obtainable by direct personal contact with the teacher, has proved itself by far the most widely useful and helpful of all the means devised for the supplementary education of the masses of the people. Busy men and women who cannot afford to leave their home, and whose studies may be interrupted, from time to time, and become only intermittent, find that, for from \$30 to \$100 they can secure a scholarship, giving them the right, without any time limit, to work through any one of varied courses, including excellent technical training, aided by competent instructors, ready to give most civil and sympathetic answers to every inquiry, patiently and clearly explaining every difficulty, and never humiliating them by laughing at their mistakes or exposing their ignorance, or slowness of comprehension, to their fellows.

The text-books published and used by the best correspondence Colleges, put their instruction in the simplest, clearest form; the object being to really help the student, and not to display the vast erudition of the author. These books are, for home instruction far and away superior to our public and high school text-books. The International Correspondence School at Scranton, Pa., and the Text-Book Publishing Company associated with it, employ over 3,000 people and occupy buildings with a floor space of over seven acres. This school alone has students in every part of the world accessible by mail; and the number enrolled is now about 750,000. At an average charge of \$50 each, that means receipts to the amount of \$37,500,000 by a private educational institution from the students now in its rolls. Think of it! Could any stronger proof be given that the masses are eager for an education which the regular schools have not afforded them? And this is only one of several great American Correspondence Schools. It is estimated that over two million persons are now taking correspondence courses in the United States. While there is this enormous demand for instruction in many subjects, it is especially great in those which add most to wage-earning capability, and comes chiefly from persons who are unable to leave their situations to attend any of the established schools.

The lucidity of explanation attained in the instruction papers of the Correspondence Schools has led some of the most progressive of the American Colleges and Universities to acquire and bind them for their libraries, and even to adopt all or portions

of them, for their class work. There is a pointer in this for our Government in its contemplated text-book revision.

Millions of dollars of good Canadian money have gone to the United States for "Correspondence Teaching," and it is only within the last three or four months that the first successful effort has been made to check this drain upon our resources, and to compete with our wide-awake neighbors, not only here, but in their own country, in the supply of inexpensive text-books suitable for home education, and written by scholars of the highest standing. This has been effected by the "Harmsworth Self Educator," published in Toronto in semi-monthly parts. It is an admirable work, in part rewritten for the Canadian and American markets. The preparation of the English work, the publication of which began in October last, cost £27,000; and its English circulation is between 500,000 and 600,000 copies of every number. The Canadian publisher is selling here nearly 40,000 copies; and is selling to the American News Co. alone a minimum of 200,000 copies of every number.

Do not such facts as these demonstrate the present urgent need of progressive action on the part of our government? Has not the time arrived for the adoption of a comprehensive policy of State controlled Home Education?

It is not alone Niagara's power, but the vast amount of Ontario's brain power, that is going to waste, for want of proper direction and control. May we not hope that the government will soon devise and mature well studied plans, for the most profitable utilization of both.

The efficiency of Correspondence Teaching having been proved, it may well be taken up by our Universities; as is being done by some of those in the United States; for a well-managed endowed institution can offer better instruction at less cost; and, with its established reputation and means of rewarding good work by credits looking toward a university degree, should compete successfully with any private enterprise. If our universities fail to do this, then, with a full recognition of its limitations, but also of its possibilities, the government should establish correspondence teaching, as a creditable educational factor, to be employed under the direction of a library and home Education Department, such as I have previously referred to.

The feasibility of such a plan is further demonstrated by the

abundant success of the great Chautauqua Educational Centre, a private enterprise, though receiving some State recognition in this, that the University of the State of New York confers degrees in specially meritorious cases, for work done under the Chautauqua system. A further notice here of this great institution, will be quite appropriate, as showing not only the practicability of conducting, under one management, many different educational agencies, but also as indicating some of these additional means of supplementary training, to which I may not be able more fully to refer within the limits proper for this paper.

The great practical value of the results which flow from the contact of mind with mind, among those pursuing the same studies, is thoroughly recognized as one of the most important benefits conferred by College residence. In home education the solitary student loses this and only a measure of it is obtained by the different expedients for mutual help, such as study clubs of two or more friends, and literary circles. A much closer approximation to the real thing is secured, however, by those who from year to year are able to spend July and August with the thousands and tens of thousands who then forgather and tabernacle on the shores of the beautiful Lake Chautauqua, some 70 miles south of Buffalo. A village of 1,000 people for nine months of the year, this famous resort welcomes, entertains and instructs from 30,000 to 60,000 people during the other three months.

Bishop Vincent defines the "Chautauqua idea" in these eloquent words:

"Chautauqua pleads for universal education; for plans of reading and study; for all legitimate enticements and incitements to ambition; for all necessary adaptations as to time and topics; for ideal associations, which shall at once excite the imagination, and set the heart aglow." And again, "A college is possible in every day life, if one chooses to use it; a college in house, shop, street, farm, market; for rich and poor; the curriculum of which runs through all of life, a college which trains men and women everywhere to read, and think, and talk, and do."

A New York State bulletin concisely states the contents of the programme as follows:

"For the many, there are popular lectures, concerts, entertainments; for a somewhat less number, there are philosophical, scientific, and literary lectures, in progressive courses; for the comparatively few, are provided means for careful study under able and well known instructors."

More formally stated, the work is thus classified:

(1) The College of Liberal Arts provides instruction in languages, mathematics, psychology, political economy, and science, continued at home throughout the rest of the year by correspondence with the professor in charge of the department.

(2) Schools of Pedagogy and Sacred Literature, in which definite class instruction is given, followed also by Correspondence Teaching throughout the rest of the year.

(3) Classes in art, music, physical education, etc.

(4) Lecture courses, like the regular University extension lectures.

(5) Public lecture courses, of a more popular kind.

(6) Recreation by entertainments of various kinds, such as concerts, stereopticon exhibitions, etc.

The most important home-study course is that known as "C. L. S. C.," the Chautauqua Literary and Scientific Circle. It is a course of home readings in History, Literature, Science, Art, Political Economy, and Sociology, carried on in connection with local Reading Circles, with text-books supplied by the association, and supplemented by correspondence instruction, and by suggestions in the "Chautauqua" monthly magazine, at a total cost to each pupil of \$5.00 per year.

The educational work of the Y. M. C. A. of this continent, though restricted to fewer lines than that of Chautauqua, reaches a larger number of the laboring and mechanical classes, and a few statistics may help us to apprehend in some degree its importance. After only ten years of systematic promotion, according to the record of the year 1903-4, they conducted, exclusive of religious and Bible study lectures, clubs and classes through 1,005 different local associations; 603 reading rooms with 32,403 periodicals; 707 libraries with 578,382 volumes; 3,267 educational lectures and talks; 618 educational clubs, and 376 groups of educational classes; covering a very wide range of subjects and enrolling 32,821 different men, taught by 1,516 employed teachers.

In all supplemental educational work the aim must be to provide liberally trained, energetic and tactful supervisors, for the personal leadership and direction of work which is often intruded in the midst of conditions, such that no conscious or intelligent demand for it seems to exist; but in order to maintain the closest possible working contact with the employed classes, it is important to secure in the leadership of the local work, a large number of indi-

viduals representative of the various classes of people in the community to be served, and also representative of the various walks of life. The active participation of these representatives in the guidance of the different features insures that the movement shall be constantly adapted to current conditions and needs, and saved from becoming either distorted in the hands of extreme faddists, or crystallized into an arbitrary educational system entirely dominated by professional schoolmasters.

This principle should be followed in the various forms of association work which should be conducted in connection with our local Public Libraries and Reading Rooms. All the newer Public Library buildings do and should contain auditoriums and lecture rooms; and High School buildings, for the sake of the day-pupils and of the night schools for adults which may be held in them, should contain ample sized chemical laboratories, and rooms for apparatus to be used in demonstrations connected with lecture courses in physics, mechanics, and other branches of science, and for collections of specimens of plants, minerals, etc.

I would suggest, therefore, that Public Library Boards, whose actual membership is of course fixed and limited by law, should organize a voluntary body of Library Associates from among those best suited to help them in special work, and that once in every two months these should be invited to meet with the Board in an advisory way; and that definite programmes of work for each year or season should be arranged so as to make available the help of these associates.

The columns of the local papers are always open to well-written communications on Public Library topics. Then let signed articles, now by one "Associate" and again by another, appear every week upon literary, scientific, educational or even historical topics, or upon questions of library administration. Let the same column be open for criticisms from the general public, so that the position taken by the Association may be criticised, attacked, or supported. This will attract everybody's interest, arouse thought, and promote investigation. A publication committee might co-operate with the editor to revise communications and restrain correspondents from the use of personalities, or grossly offensive expressions, if a controversy became super-heated. A few signed criticisms of the best books from time to time added to the library would be helpful, and soon higher

standards for estimating the true values of books would be formed, and every Associate would be impelled and the public would be led to wider and better reading.

Then, too, popular lecture courses could be organized by the Associates, by whom addresses would be given, or papers read on literary or scientific subjects.

A conversation room may be made very useful, in which directed conversations in charge of a Committee of Associates could be held along lines tending to elevate and extend the range of thought.

Debating societies, mock parliaments, etc., should be encouraged and assisted with hints and suggestions as to sources of information, etc.

Study clubs may be formed, help to Correspondence School students provided for, library reading courses planned and published, and general mental activity in the community stimulated.

All the educated men in the community should be made use of for these purposes, the men of light and leading, clergymen, lawyers, doctors, teachers, and the best read and most thoughtful merchants, bankers, manufacturers, mechanics, or men of leisure, those who have travelled abroad, those who have special taste or knowledge in art, science, music, domestic economy, dress, or general literature.

Every address or lecture should be announced in advance in the local papers, with a list of books in the Public Library bearing on the subject.

Let a general discussion or question box follow every lecture. The lecturer may answer, if prepared, and any questions not answered may be reserved for next lecture, or to be answered in the Library column in the local papers.

The Public Library should be the community's intellectual headquarters, and not merely a reservoir, but a fountain; not passive, but aggressive.

But reading, like conversation, may be either good or evil, in its influence, and every care should be taken to direct it properly. Then again one of the greatest needs of the home education work, especially for the solitary and undirected student, is a work which will give him a broad enough outlook to enable him to wisely choose his own reading, with a view to supplying his particular individual educational needs.

Few students have time to make an exhaustive study of any

of the great departments of human learning, and those who intend to do so ultimately, still need to begin with a simple summary that will spread before them the salient features of the subject, and afford a firm ground work on which to build.

The German government has done this valuable service for the supplementary education of the student so well, and the importance of the work in its most extended form has been so clearly set forth by Dr. Emil Reich, in his famous book "Success Among Nations," that before closing my paper I should like to quote a couple of pages from it which I think will be found worthy of attention:

"Here we come to the greatest force which is working to the future welfare of Germany. This is her intellectuality. The systematic thoroughness with which everything is carried out in the world of intellect is almost inconceivable. From his earliest years the German youth, whatever degree of learning he may eventually be meant to attain, is, at any rate, taught to learn systematically. He is never permitted to specialize in any subject until he has a complete grasp of generalities in order that he may have in his mind at least a sense of the proportion of what he has to learn; he at all events has his mind thoroughly ordered, and knows in what particular receptacle to classify all subsequently acquired information. His studies are never allowed to proceed haphazard. In the higher walks of scientific research the same methods are pursued. Many of the Universities have at their disposition very considerable sums for bestowal in the form of prizes for the furtherance of original scientific work. This patrimony is very carefully administered and subjects suitable for research, and requiring elucidation, are pointed out to the competitors, in order that none of the precious stores of energy need be expended in vain. The Germans have certainly hit a mean between first-rate intellectual development and a degree of volitional energy indispensable to render that intellectual development fertile.

"A few words will show what immense services have been rendered by the Germans, in the systematic classification of knowledge. If you wish to study a science, the first book you must lay your hand on must be its *Eneyelopädie*. It will not necessarily be a big book at all, and it is not the place in which to seek for minute details of knowledge, but by means of it you will get a grasp of the ground which your particular science covers: you will get an idea of its organization, its divisions, its

systems; you will get a summary view of the whole science, so that you will know exactly how far it has been carried, and what there is for you to learn. All this is implied to the German by the word *Encyclopädie*.

" Should you wish to pursue your studies further you will have to purchase a *Grundriss*; this will take you over the same ground again, but will give you much fuller detail; it will, above all, give quotations from the original sources, from the great books on the subject, together with the fullest bibliographies, whereas the *Encyclopädie* has only given select bibliographies. The next books are the *Lehrbuch* and the *Handbuch*. The former is a yet further explanation of the *Grundriss*, especially destined for the use of the student; the latter a complete compendium of the science, for the use and reference of the specialist. You have now made yourself a thorough master of your subject, by dint of assiduous labor on this organized system; but you will still require to be kept *au courant* of the subsequent progress in your study.

" Your *Handbuch*, in spite of frequent new editions, will be a little behind the times. To combat this drawback, the Germans have devised yet another instrument. This is the *Jahrbuch*, the triumph of German methods. As the name implies, these books appear annually. They are edited by the most competent authorities upon the subjects with which they deal. Let us consider for example's sake a *Jahrbuch* on botany. Its internal classification will be arranged upon the system which has already been inculcated on the student in the *Encyclopädie*, so that in turning over its pages, he will not have a moment's hesitation as to what particular section will contain the information of which he is in search. It is the object of the *Jahrbuch* in question to enregister everything that has been done during the preceding year with regard to botany. Every fresh discovery is noted, every periodical article dealing with botanical questions or researches is carefully recorded, every book which has been published during the year is given, very often with the fullest critical notes.

" Nothing which has appeared in any country relating to their particular subject can for a moment elude the vigilant eyes of the compilers of the *Jahrbuch*. It needs no keen insight to see what invaluable services their work may render to the writer upon botany or to the scientific investigator himself. The writer is sure of having absolutely the latest and most accurate information concerning the matter of which he is writing, the scientist can assure

himself that he is not frittering away his time in researches which have already been worked out to a successful or unseccessful result by another. Even if the *Jahrbuch* be looked upon only as a saver of time, an economizer of labor, it would be hard to overrate its value. Every science has its *Jahrbuch*. There are *Jahrbucher* on Teutonic Philology, on Oriental Philology, on Ancient Philology, on Modern History; there are *Jahrbucher* on almost everything.

"Some of the series cover many years, some are of only recent institution. But it is certain that the German scholar in quest of the most up-to-date literature on his particular specialty, can really not be nonplussed in his search. If he wants to know what the latest traveller has had to say upon the obscurest Tungusic-dialect spoken somewhere almost out of ken in the wilds of Siberia, he can find it within the minute so long as his *Jahrbuch* is within his reach. So, too, the doctor, interested in Malaria, can discover with mechanical ease, the latest specialist literature on his subject."

Finally, I trust you will agree with me,—

(1) That the Government of this Province should cause to be prepared a set of books of the kind indicated in this quotation, with yearly supplements such as are therein referred to, and that copies of these should be in every public library, and that the appropriate ones of the series should be in every High School library.

(2) That a special Public Library and Home Education Bureau, subsidiary to the Provincial Education Department, should be organized with a competent Director at its head, charged with the extension of the usefulness of the Public Library along the lines calculated to be most helpful to the people.

(3) That a Provincial Correspondence School or College, under the charge of the same bureau, should also be organized, closely associated with the Provincial University and with a great Provincial Library; and that a suitable series of text-books and instruction papers for this Correspondence Teaching and Home Education work, should be provided.

Since reading this paper the May number of the "Contemporary Review" has come to hand, containing an excellent article by Ernest A. Baker, entitled "Direction for Popular Readers," which is so closely akin to the matters dealt with in this paper, that I would strongly commend it to the attention of any who are interested in the subject.

RESULTS OF THE CONSOLIDATED SCHOOL.

C. W. KELLY, GUELPH, ONT.

On Nov. 14th, 1904, the Consolidated School was opened just south of Guelph.

The funds for the erection and equipment of the building were supplied by Sir William Macdonald and therefore nothing is wanting in this respect. Besides the ordinary class-rooms there are rooms for Domestic Science, Manual Training, and a large room for public meetings. The grounds are large and give plenty of room for school gardens and recreation.

Until August 21st, 1905, the pupils of four sections were in attendance, and since then there have been five sections. The City of Guelph is almost in the centre of these sections, and as the pupils from three of them have to be carried through the city the territory covered is abnormally large for the number of pupils and the cost in this respect increased.

For the five sections eight vans are used. These are of three sizes—twelve, fourteen and sixteen feet in length. The twelve foot one carries eighteen to twenty pupils; the fourteen foot one, twenty-two to twenty-four, and the sixteen foot one, about twenty-eight. These vans have their regular routes and collect the pupils at their gates or regularly appointed places. They are not supposed to wait more than two or three minutes at any one place, and are to arrive at the school not earlier than half past eight nor later than ten minutes to nine. The drivers are to see that the pupils conduct themselves properly on the road to and from school. In very cold weather the vans are made comfortable by placing hot bricks at the feet of the pupils. The average cost of the vans was \$165, and the drivers receive for themselves and horses from \$2 to \$2.90 for each school day.

There has been a marked improvement in the number of pupils attending and on the average attendance. In 1902 for these five sections there were 224 pupils on the roll, with an average of 105; in 1903, 236 on the roll, average 107; in 1904, 227 on the roll, average 89, and in 1905, the first full year after consolidation, 259 on the roll, with an average of 174. The percentage of increase on the average for 1905 over 1902 is 65.7 per cent; over 1903, 62.6 per cent., and over 1904, in which winter we had a great

amount of snow, 99.6 per cent. The attendance of pupils in the first books, part I. and part II., has been as good through January and February as in May and June. In a class of thirty-nine pupils in part I., the lowest class, twenty, never missed one day in January, February and March, 1905.

Connected with the school is the school garden. Each pupil has his or her individual plot to plant and care for. Each class has also a larger plot, and besides these are fairly large plots in which experiments are carried on for the instruction of the whole school. In these experimental plots the pupils are taught the effects of different rotations of crops; the various methods of cultivating the soil, with their advantages or disadvantages; the care of root crops while growing; the effects of various spraying mixtures, as Bordeaux and Paris Green; the identification of the different weeds and their seeds; the growth of these weeds and the best methods of getting rid of them; the fungus diseases, as rust, smut mildew, etc., and their treatment; the numerous insect pests, as potato beetles, cabbage worms, codling moths, plant lice, cut-worms, pea weevils, etc.,—their life history and the best means of combating them.

I have not enumerated nearly all the things that are taught in the school garden, but I think that you will agree with me that if the rising generation of farmers is to keep pace with that of other professions or callings, every rural school must have its school garden and a competent teacher or instructor. Any boy or girl holding a teacher's certificate will not do for this work. In my opinion it would be useless to establish school gardens unless teachers who have given special study to this work are put in charge. A consolidated school can have one teacher qualified for this work.

The manual training is in charge of a specialist. The room is equipped with benches and tools for wood work, and all boys in the third, fourth and fifth book classes take this course. Special attention is given to making articles which will be of use on the farm, as axhandles, hammer handles, whiffletrees, etc. As the cities and many of the towns have manual training classes I presume that you are familiar with the important work that is being done in this line, and shall not take up your time by going into further details.

While the boys are at manual training, the girls from the same classes are being instructed in domestic science in a room specially

fitted for this work, and by a qualified teacher. Particular attention is given to the preparation and cooking of various articles of food and much useful information is imparted. Many of the things used are grown in the school gardens.

Besides school gardens, manual training and domestic science the ordinary school subjects are taught. Music also receives considerable attention and the school is provided with a good piano. The pupils are taught singing in all the classes and the notes are taught in the higher classes. Occasionally concerts are given by the pupils to which the parents are invited.

The question of expense is one of some importance. In addition to the vans which have already been spoken of, there are seven teachers. Their salaries range from \$400 to \$1200, being somewhat better than are paid in rural sections, and will amount to \$4,600 for this year. The cost of van service for last year was \$3,400. The total cost for 1905 was \$8,660, of which the five sections paid \$2,302. The balance was paid by Sir William Macdonald and government grants.

When the various sections united to form the Consolidated School one of the conditions was that these sections would pay the same rate as they had done previous to union and that Sir William Macdonald would provide the balance for three years. The balance has been somewhat large as the sections, like many other rural sections, have been paying a very small amount for educational purposes. Perhaps it would be interesting for you to know just what they have paid.

The highest assessment for the five sections is 1 6-10 mills in the dollar for school purposes. The others are 1 2-10 mills, 1 1-10, and the other two 9-10 of a mill each. Unless rural sections pay more than this no system of education can be made a success.

The advantages of consolidation are many. Classes can be better arranged; teachers qualified to teach the new subjects can be employed; High School work, and especially that relating to agriculture, can be done; and more regular attendance secured. The only disadvantage I see is the increased cost, and as I have already said, unless our rural sections pay considerably more than they are doing, say 5 mills on the assessment, no system can be made a success and our farmers' children, from lack of proper education, will not be the intelligent citizens which Ontario should have.

HOME SCIENCE SECTION.

RESULTS OF SOME RECENT INVESTIGATIONS WITH BREAKFAST FOODS.

R. HARCOURT, GUELPH.

Within recent years an almost endless variety of "breakfast foods," or "breakfast cereals," have been placed upon the market. Many, or all of them, are valuable additions to our list of foods; but it is doubtless true that the prominent place they occupy in our dietaries is due in a large measure to the method of advertising them. According to the claims made for them, they are not only a perfect food in a condensed form, but they are also brain tonics and have a variety of other wonderful virtues. Some of the claims made for them are founded on fact, others are extremes, and are apparently made to catch the eye of those who imagine that particular articles of diet may be made to perform wonders in the human economy.

The various types of breakfast foods may be roughly divided into the following classes: First, the uncooked, such as the coarsely ground wheat and oat meals, which require long cooking to make them palatable and more easily digested; second, the partially cooked, to which the rolled and flaked grains belong. In the preparation of these foods the grain is softened by steaming and then rolled and dried. In this process they are partially cooked and the cell walls are ruptured by the crushing; consequently they may be prepared for the table in much less time than those of the previous class. The third class are the cooked foods, such as shredded wheat, which may be served at once without any special treatment. A fourth class are the so-called "predigested foods." Undoubtedly many of the numerous preparations of this type have had a portion of the carbohydrates broken down into more soluble forms, but experiments do not prove that they are any more completely absorbed by the human system, and it is doubtful if a healthy individual is the better for having this work done for him.

Our investigation of these breakfast foods deals with their chemical composition, their digestibility, and the changes effected by short and long cooking. Unfortunately only a part of the work is completed, and I cannot discuss this important class of foods as fully as intended when I consented to speak to you on this subject.

For the present, I must confine myself to a discussion of the results of our work on two samples of rolled oats and two samples of wheat farinas. For purposes of comparison I have embodied in the tabulated results figures obtained by Dr. Atwater in his work.

It will not be necessary at this time to dwell upon the factors which must be considered in estimating the value of a food. The two that are of most importance are the composition of the material and its digestibility. It must of necessity be palatable or capable of being made palatable by cooking or other mode of preparation, and it should "agree" with those who eat it. Further, the relative cost of the nutrients in the material should be taken into consideration. The composition of the oat and wheat meals we have investigated are given in the following table, together with the composition of three common "pre-digested" foods and three grades of flour:

PERCENTAGE COMPOSITION OF BREAKFAST FOODS.

Name of Material.	Moisture.	Crude protein.	Crude fat.	Nitrogen free extract.	Crude fibre.	Ash.	Calories per gram.
Oatmeal, No. 1.....	11.34	9.86	9.40	66.40	1.42	1.55	4.060
" " 2.....	8.04	15.78	7.24	65.98	1.08	1.88	4.070
Wheat farina, No. 1	11.38	10.06	.83	70.32	.58	.83	3.643
" " " 2	12.13	9.88	.61	76.18	.55	.65	3.608
*Grape Nuts.....	6.47	11.63	.77	78.96	2.17	4.061	
*Malta Vita	11.32	12.20	1.52	72.03	2.93	3.841	
*Force.....	10.86	9.86	1.65	74.77	2.86	3.822	
†Graham flour	13.21	14.21	2.01	68.56	2.01	3.971	
†Entire wheat flour.....	13.51	13.72	1.69	70.10	.98	3.877	
†Straight patent flour....	12.38	13.60	1.30	72.04	.68	3.861	

The two oat meals and the two wheat meals were of different well-known brands. Although they differ considerably in composition, it is remarkable that the two samples from each kind of grain are so alike in fuel value. The oat meals afford an

*Stoors Agricultural Station Report, 1904, p. 186.

†Office of Experiment Station, U.S. Department of Agriculture, Bulletin No. 126, p. 13.

illustration of the difference there may be in the composition of food products made from the same kind of grain. In this instance the difference is between two different brands, but chemical analyses show that there may be just as wide a difference between two samples taken at different times from the same brand. It will be noticed that the oat meals contain a high percentage of fat and that they yield a greater number of calories of heat per gram. of material than do any other of the foods, excepting Grape Nuts.

In order that we might determine the availability of these foods, a series of digestion experiments were carried on. In general, the plan of the experiment was as follows: A sufficient quantity of the food to be used was thoroughly mixed and a sample taken for analysis. A careful record was then kept of the weight of food eaten by each of the subjects. The faeces was collected, weighed, and analyzed, and the difference between the amount of each constituent fed and that found in the faeces was figured as being digested and absorbed. Strictly speaking, the results thus obtained do not represent actual or true digestibility, for the reason that the faeces contain not only the portions of the food that are not digested, but also other materials which consist largely of the digestive juices not absorbed. No satisfactory method has yet been devised for separating the undigested residues from these metabolic products, hence the actual digestibility of the food is not easily determined. However, the results, while not absolutely correct, are the best that can be got at present, and are at least comparable.

The subjects of the experiment were all young men in good physical condition, and with apparently normal digestion and nutrition. They were all engaged in light work and each one took some physical exercise each day. In every case the experimental period was four days and all the work was done in triplicate, that is, three subjects ate of the same preparation of food, and the results given in the following table are an average of the results obtained. The diet was made as simple as possible, and consisted of the breakfast food with cream and sugar. In every case the oat and wheat meals were cooked for half an hour in a double boiler. Each subject was allowed to take as much of the food as he chose, but an accurate account was kept of all that was eaten.

Without going further into the details of the experiment, and leaving out a mass of detail figures, I have placed in the following table the digestion co-efficients, or the percentage amount of each constituent digested.

AVERAGE DIGESTION CO-EFFICIENT, INCLUDING CREAM
AND SUGAR.

	Organic matter.	Protein.	Fat.	Carbohydrates.
Oatmeal, No. 1	93.8	77.3	93.4	97.6
“ No. 2	94.0	84.2	93.0	98.0
Wheat farina, No. 1	94.9	79.3	94.1	98.0
“ “ No. 2	96.7	85.8	96.3	98.8

No serious inconvenience was experienced by any of the subjects in subsisting on the diet, and there was no reason to believe the results abnormal in any way.

Previous experiments by Dr. Atwater and others have demonstrated that practically 97 per cent. of the protein and 95 per cent. of the fat of cream, and 98 per cent. of the carbohydrates of cream and sugar are digested.* If, then, using these figures we calculate the amount of the cream and sugar that would appear in the faeces, we can compute the digestibility of the oat and wheat meals alone. The figures thus obtained are given in the following table. For purposes of comparison the digestion co-efficients of the other foods mentioned in table No. 1 are included.†

AVERAGE DIGESTIVE CO-EFFICIENTS OF FOODS ALONE.

	Organic matter.	Crude protein.	Crude fat.	Carbo-hydrates.	Calories, per gram
Oatmeal, No. 1, short cooking	91.6	74.3	90.5	97.5	3.811
“ No. 2 “	91.3	82.7	84.1	98.0	3.786
Wheat farina, No. 1, short cooking	91.0	73.7	....	98.0	....
“ “ No. 2, “	94.6	82.9	....	99.1	....
Grape Nuts	70.1	....	91.5	....	86.3
Malta Vita	72.1	....	90.0	....	83.4
Force	69.8	....	88.5	....	78.7
Graham bread	76.0	....	90.4	....	82.9
Entire wheat bread	82.3	....	97.9	....	87.1
White bread	88.1	....	97.9	....	92.0

It will be observed that no figures appear in this table for the digestibility of the fat in the wheat products. This is because the amount of fat is so small in these foods that reliable figures could not be obtained. The above table shows that both the

protein and the carbohydrates in the oat and wheat meals were more fully digested than that in Graps Nuts, Malta Vita and Force, and nearly as well as that in the white bread.

Another point studied in connection with these foods was the influence of short and long cooking on their digestibility or absorbitility. In this work the short cooking consisted of thirty minutes' boiling and the long cooking of eight to ten hours' boiling in a double boiler. The latter product was eaten with cream and sugar the same as the former, and, to overcome the difference due to individuality, the same three subjects were used in both. The digestion co-efficients obtained are found in the following table:

DIGESTION CO-EFFICIENTS OBTAINED FROM SHORT AND LONG COOKING OF THE SAME FOOD MATERIALS.

	Organic matter.	Crude protein.	Crude fat.	Carbo-hydrates.	Calories per gram
Oatmeal, No. 1, short cooking	91.6	74.3	90.5	97.5	3.811
" No. 1, long "	91.7	75.1	96.9	98.0	3.884
" No. 2, short "	91.3	82.7	84.1	98.0	3.786
" No. 2, long "	92.9	86.5	91.3	98.5	3.882
Wheat farina, No. 1, short cooking..	91.0	73.7	....	98.0	....
" " No. 1, long " ..	92.2	76.3	....	97.9	....
" " No. 2, short " ..	94.6	82.9	....	99.1	....
" " No. 2, long " ..	90.9	71.3	....	98.1	....

In both oat meals and one of the wheat meals slightly higher figures were obtained when the food was cooked a long time. In the other case only one subject was the same in both experiments and he digested slightly more of the long cooked material. From these figures it does not appear that the long cooking materially increased the digestibility of the food. However, we have no data to show which was the easier digested, as it is quite possible that the long cooking broke down the constituents of the food so that as much energy would not have to be expended in the process of digestion. It is our intention to determine to what extent the long cooking changes the composition of the meals.

From the data obtained in our work, and elsewhere, it does not appear that the so-called "pre-digested" foods are more completely absorbed than other breakfast foods. Although the actual pre-digestion of food may afford some benefit to persons with weak digestion powers, it is of no advantage to persons of normal digestion.

There are very wide differences in the cost of these breakfast

foods. In many cases the market price has little connection with nutritive value or even cost of the materials and preparation. The uncooked cereals, especially those bought in bulk, are the least expensive per pound, but the cost of labor and fuel for cooking them may be sufficient to render their use no more economical than the lower priced cooked foods. These conditions vary with circumstances, and each one must decide them for himself. It must be remembered, however, that a curious name or appearance or process of preparation does not indicate an extraordinary food value, no matter what extravagant claims may be made for it, and, under ordinary conditions and where economy is considered, it does not appear to be good practice to pay ten and fifteen cents per pound for some brands when other preparations from which at least an equally large amount of nutrient may be obtained can be bought for three and four cents per pound.

THE LITERATURE ON DIETETICS.

MISS JEAN A. DOANE, TORONTO.

The subject which has been given to me is such an exceedingly broad one that it will be impossible to deal with it as a whole. But we shall take for our special topic the recently published book by Prof. Chittenden, of Yale University, entitled "Physiological Economy in Nutrition."

The literature on dietetics gives to the world the entire history of the observations, experiments and general conclusions of some of the most eminent scientists in regard to the requisite amount of food necessary for the maintenance of health and strength.

Certain dietary standards have been set up and they have had their followers wherever this subject has been studied.

Carl Voit, of Munich, whose long and successful life as a student of nutrition renders his conclusions of great value, considers that an adult man of average body weight (70 to 75 kilo.) doing moderate muscular work, requires daily 118 gm. proteid, 56 gm. fat, 500 gm. carbohydrate, with a total fuel value of over 3,000 calories in order to maintain the body in equilibrium.

Conclusions arrived at by other investigators along these lines have been more or less in accord with Voit's figures, some placing the proteid figure even higher than 118 gms.

Prof. Atwater, who has made many valuable observations upon the dietetic habits of different classes of people under different conditions of life in the United States, has come to the conclusion that the amount of proteid per day should be 125 gms., with a total fuel value of 3,300-3,500 cal. per day.

One of the latest books on alimentation is by Armand Gautier, in which the daily food requirements of the French people is stated to be from 78-135 gms. of proteid, according to the amount of work done. He states that an average diet should contain 110 gms. of proteid.

But even before these later books were published some doubt was thrown on the subject by the experiments of Prof. Hirschfeldt, in Germany, who found that nitrogen equilibrium could be maintained on a diet consisting of 35 or 45 gms. proteid. Prof.

Hirschfeldt also pointed out that the character of the proteid was important, as only about 75 per cent. of the proteid of vegetable foods can be digested and absorbed.

Closely following these results came similar results from Japan, showing that an average of 54 gms. proteid kept the body in equilibrium there, and also showing that the purely vegetable proteid was not as well digested and absorbed as that of a mixed diet.

Many other investigators in different parts of the world found that there was no great difficulty in establishing nitrogenous equilibrium in man with much lower quantities of proteid food.

The important difference in the foregoing results brought up the question: "How far can natural instinct be trusted in the choice of diet?"

Considering that we are all creatures of habit, and our palates are pleasantly excited by rich animal food, our dietetic habits are usually based upon the dictates of our palates rather than upon scientific reasoning.

It seems to be the popular belief among people that a large excess of fat deposited throughout the tissues is an important means of indicating that the body is well nourished, and that all bodily ills are to be met by increased intake of food.

There is almost universal belief in the efficacy of a rich and abundant diet to increase bodily and mental vigor, and hence the constant temptation to increase the daily ration.

Physiologists have long realized that a very large proportion of the bodily ills of this age are directly due to mistakes in diet.

It seems to be self-evident that the smallest amount of food that will serve to keep the body in a state of high efficiency is physiologically the most economical, and hence the best adapted for the needs of the organism.

An excess, especially in the proteid foods, may be distinctly injurious, as the proteid decomposition products are a constant menace to the body.

About five years ago, when these ideas were gaining ground, a paper was read before the British Medical Association claiming that "thorough mastication and insalivation aid in the more complete utilization of the food and render possible great economy, so that the body weight and nitrogen equilibrium are both maintained on an exceptionally small amount of food."

In the following autumn this idea was investigated at Cambridge University, and as a result this statement was made by Sir Michael Foster: "The adoption of the habit of thorough insalivation of the food was found to have an immediate and very striking effect upon appetite, making this more discriminating, and leading to the choice of a simple dietary, and in particular, reducing the craving for flesh food. The appetite, too, is, beyond all question, fully satisfied with a dietary considerably less in amount than with ordinary habits is demanded."

This principle had been worked out by Mr. Horace Fletcher on himself, in an attempt to regain his health, with such beneficial results that he was quickly restored to a state of exceptional vigor and well-being.

Prof. Chittenden, Director of the Sheffield Scientific School of Yale University, was greatly interested in these experiments, and when Mr. Fletcher visited the University, in 1902, he spent several months with Prof. Chittenden, thereby giving him an opportunity of studying his habits of life. These observations showed that Mr. Fletcher was able to practice marked physiological economy with great gain to the body as regards strength, vigor and endurance, coupled with an apparent resistance to disease.

Prof. Chittenden realized that (1) the only way to establish these facts was by prolonged experiments, not only to continue for days or weeks, but through months and years. He also realized that (2) a monotonous diet would not bring out the best results, and he knew (3) that in order to make his experiments of value they must be tried upon a large number of people and under different conditions of life.

These experiments were conducted with three distinct types of individuals: First group of five men, university professors, leading active lives, but doing chiefly mental work; second group of 13 volunteers from Hospital Corps of U. S. Army, taking vigorous, systematic exercise in gymnasium, in addition to regular routine work; third group of 8 students in university, thoroughly trained athletes.

Prof. Chittenden was fully impressed with his responsibility in conducting experiments of this kind; he realized that he was dealing with human lives, and so his very first experiment was upon himself, November, 1902. Recognizing that the habits of

a life-time should not be too suddenly changed, a gradual reduction was made in the amount of proteid food taken each day and also in the total amount of food.

The seventh month of the experiment was spent at a fishing resort where Prof. Chittenden would row six to ten miles in the morning without breakfast with greater freedom from fatigue and muscular soreness than in previous years on a fuller dietary. This tended to strengthen his opinion that it is a mistake to assume the necessity for a hearty meal because heavy work is to be done. It seems more rational to leave the hearty meal until the day's work is accomplished.

We very often compare the working body with an engine, but quite frequently overlook an important difference. The source of energy made use of in moving the machinery of an engine is the combustible material introduced into the fire-box, but the energy of muscular contraction, for example, comes not directly from the oxidizable food material in the stomach, but from the material of the muscle itself, and so the ability to endure continued muscular strain depends upon the nutritive condition of muscles involved and not upon the amount of food present in the stomach.

And so Prof. Chittenden considers that it is perfectly logical to begin the day's work with a very light breakfast, and that a hearty meal should be taken when the energy necessary for its digestion can best be spared.

During the first few months of this experiment the body lost in weight, under the gradual change in diet, but in October, 1903, it was noticed that the weight had become stationary at 57.5 kil., and so it was assumed that the body had finally adjusted itself to the new conditions.

Preparations were now made to find out the condition of the body in regard to nitrogen metabolism. To do this it was necessary to collect and analyze the daily output through the kidneys, with special reference to the total nitrogen as a measure of the amount of proteid material metabolized. This was done each day from October, 1903, to June, 1904, and an accurate record was kept of volume, specific gravity, nitrogen, uric acid, P^2O^5 .

In looking over the published tables in connection with this experiment, chief interest centres around the figures for total nitrogen, as this shows us the amount of proteid material broken

down in the body each day. We find that the average output of nitrogen for the entire period of nine months is only 5.7 gms., representing 35.6 gms. proteid—only about one-third of the Voit standard.

It was now necessary to prove that the body was in nitrogenous equilibrium. This was partially done by showing that the body was at constant weight, but it was proved conclusively by a careful comparison of income and output.

All the food eaten had been carefully weighed and analyzed, and the entire nitrogen output was calculated.

When the nitrogen balance was taken it showed not only that the body was in nitrogenous equilibrium, but there was a slight plus balance, showing that even with the small intake of proteid food the body was storing nitrogen at the rate of .16 gm. per day.

A second balance experiment was tried three months later, confirming the preceding results.

Calculations were next made as to the proteid requirement of the body per kilo. of body weight. The figures from the preceding experiments showed the metabolism of .625 gms. proteid matter daily per kilo. of body weight under conditions of life and activity of this particular individual.

Prof. Chittenden says: "Greater freedom from fatigue, greater aptitude for work, greater freedom from minor ailments, have gradually become associated in my mind with this lowered proteid metabolism and general condition of physiological economy. The system has become so accustomed to the new level of nutrition that there is no desire to return to the more liberal dietetic habits of former years."

The subject of the second experiment was the Professor of Physiological Chemistry at Yale University, with a body weight of 70 kilo., and of strong physique.

For seven consecutive months he showed an average daily metabolism of 6.53 gms. of nitrogen. In his case the wants of the body could be fully met by a metabolism of 40.8 gms. proteid matter daily. Three other experiments were performed upon professional men, showing similar results, and seemingly to warrant the assertion that professional men can safely practice economy in the use of proteid food equal to saving one-half to

two-thirds the amount called for by existing dietary standards, and without an increase of non-nitrogenous food.

The second group of experiments was in connection with a detachment from the Hospital Corps of the U. S. Army. They lived for six months in the vicinity of the University, under military discipline and subject to the constant surveillance of the commanding officers. In selecting the men for this experiment, attention was paid to securing as great variety of types as possible.

This group was entirely different from the preceding one, composed of men accustomed to living a vigorous life under varying conditions, and who naturally had a great liking for the pleasures of eating. They also had no personal interest in the experiment, or in the principles involved.

The results obtained with this group, living on a prescribed diet and exposed to stress of military discipline, together with vigorous gymnastic work, confirm in every detail the conclusions arrived at with the group of professional men. Once accustomed to a more sparing proteid diet, each one of these subjects had no difficulty in maintaining body weight on simpler and lighter food. A metabolism of 50 gms. of proteid per day was found to be quite sufficient, and a fuel value of 2,500 calories per day was ample to meet all requirements.

Dr. Anderson, Director of Yale Gymnasium, reported very favorably upon the physical condition of the men, stating that they had reached a much higher physical standard during the six months' experiment. This possible improvement of the physical condition of the body under a lowered proteid intake is one of the new factors brought out by this group of experiments.

We turn next to the group of university students trained in athletics.

It is well known that men in training for athletic events deem it necessary to consume large amounts of proteid foods, for the greater development of vigor and strength.

Prof. Atwater, in Bulletin 98, discusses the effect of severe and prolonged muscular work upon food consumption, digestion and metabolism. He speaks of a professional bicyclist who showed a metabolism of 243 gm. of proteid material.

The theory of a prominent trainer is that if the men are not

fed on a rich meat diet, and plenty of it, they will grow soft and lose their strength.

With a view to testing these points, eight students, all trained athletes, volunteered to act as subjects for the experiment, which lasted five months. For the first ten days the regular diet was adhered to, so that the proteid metabolism characteristic to each one could be ascertained. This showed in some cases a metabolism of 130-200 gms. proteid material daily. The men were then instructed as to the chemical composition of the various foodstuffs, and were given perfect freedom to reduce the daily intake of proteid food gradually and in the way best suited to their own individuality. During the last two months of the experiment they had so reduced their intake of proteid material that the average metabolism of the eight students was 55 gms. proteid matter.

These athletes were able to reduce their nitrogenous metabolism to as low a level as some of the men of the professional groups and of the soldier groups, with not only maintenance of health and strength, but with decided increase in muscular power.

Another interesting question to a dietist is discussed by Prof. Chittenden: "Whether greater economy in the consumption of food may not be of value in preventing disease, or prove of use in combating disease." Many arguments are put forth in support of this theory, based upon certain well-known facts and observations, showing that the nitrogenous waste products are more or less dangerous to the well being of the organism, hence the belief that there is greater safety for health and longevity in adopting dietetic habits more in accord with the real needs of the body.

We must also notice that these results are important from an economic and sociological standpoint.

Why should people indulge in such wasteful extravagance in the matter of diet, when there is no real physiological need for it?

Simplicity of living might well be given more careful consideration. The ordinary forms of proteid food are as a rule the most costly of dietetic articles, and there might well be a saving in the daily expenditure.

With enlightened methods of living will come a truer appre-

ciation of the dignity of the body, and the kindly feelings of hospitality will not go hand in hand with a lavish, intemperate display of food.

There is also a great economy in time to be considered, and the increase in happiness and contentment which usually appear in direct proportion to the health and prosperity of the individual.

So the application of the principles of physiological economy in nutrition, if consistently adopted and followed, may lead to the improvement of economic and sociological conditions of mankind.

HYGIENE SECTION.

THE TRAINING OF TEACHERS IN HYGIENE.

CL. T. CAMPBELL, M.D., LONDON.

The increasing recognition of the importance of sanitary science justifies the demand that the subject should occupy a more prominent place in the course of study preparatory to entering upon the profession of teaching. Important for all people, it is perhaps more so for teachers than for others. And this for several reasons :

(1) For the teacher's personal benefit. In no calling is perfect health more necessary for the performance of the work to be done than in that which involves the mental labor and the mental worry of teaching a class of children. (2) Because the teacher stands in *loco parentis* to the rising generation during the formative period of life, when correct habits—physical, mental and moral—are most easily developed; at the only time when children can be properly trained how to live, and in many cases, when the teacher is the only person upon whom the children have to depend for the knowledge required. (3) Because the teacher, through his intimate association with the child, is able to follow it to its home in sickness, and act as a missionary of the gospel of hygiene in many houses where unsanitary conditions exist, and where the advice of no other person, even if offered, would be heeded. (4) And finally, because the teacher is required by law to act as a sanitary officer, so far, at least, as his own charge is concerned; and by prompt action, in harmony with the municipal authorities, can take most effective steps to prevent the spread of infectious diseases.

But the teacher's preparation for this department of his work is sadly defective. The few lessons in hygiene which he receives at school—the value of which he often fails to realize—and the few lectures on sanitary science in the Normal School, at a time when he is fully occupied with other studies; this constitutes his sole training. When it is remembered that to be a good sani-

tarian one should know well anatomy, physiology, pathology, chemistry; should understand the effect on the body of air, light, heat and cold; should comprehend the nature and operations of the omnipresent disease germs; should realize something of the influences of climatic and of social relationships; should be familiar with state and municipal regulations; it will be admitted that the teacher's opportunities for advancement in this science are too limited for him to be able to do very effective work.

The teacher's training in hygiene should commence in his own school days. That means that the subject should be more thoroughly taught in the Public Schools. In the junior classes there should be more frequent conversational lectures on the simple rules of living—the right care and the proper use of the organs of the body. But when the child takes up the regular routine of study, anatomy and physiology should be more thoroughly taught. And this not simply for the knowledge to be gained, but because it is only with this knowledge that the child can understand the reason for the various rules that he is taught. And it is safe to assume that those rules will be best remembered and observed the reasons for which are best understood.

With the ground work thus acquired, in common with all school children, the teacher will find his way prepared for a more extended course in sanitation. And this should commence as soon as he enters upon his pedagogic studies—whether it be in a Model School, or a Normal School, or by whatever name the institution may be called.

He should first obtain some knowledge of the history of sanitation. He thus learns what has been done in the way of preventing disease and prolonging life. From history we learn how to avoid the errors of the past, to improve present conditions, to develop new plans for the future.

He should then take up the study of the human body; its development from its primordial cell; its growth through the accretion of protoplasmic material. This will involve investigation into the character and use of the various food substances; the effect upon their assimilation of air, light, exercise, occupation, association and surroundings; the functions of the organs of special sense, and how they are influenced by the conditions of life; the protection of the body by the clothing it wears, and the dwelling in which it is housed.

The question of school sanitation should occupy a prominent place in this curriculum—though it is but the practical application to a community of the facts pertinent to the individual with which the teacher should be now familiar. The best forms of school buildings and school appliances; the best way to utilize the conditions in which the children are placed; the most hygienic methods of education; involving, in fact, the care alike of body, mind and soul. And in this connection attention should be given to the phenomena of contagion—the fruitful source of disease—so that the teacher shall be fitted to act the part of a sanitary officer, to the benefit not only of his own pupils, but of the entire community.

Another branch of study, but one which must be handled with discretion, is that bearing on the sexual relations, and which, of course, would be taught in separate classes. The teacher is not to be instructed in this with the expectation that he shall in turn take it up in the school-room. But in order that, understanding the conditions of sexuality, he may be fitted for the office of friend and adviser to the individual child. The good teacher strives always to gain the confidence and affection of his pupils. And with this gained, the opportunities are innumerable when, the male teacher with the boys, and the female teacher with the girls, as they approach the puberic age, may guide aright their thoughts and actions; preserve them from evil habits; cultivate a pure and temperate life, and establish their feet in the paths of virtue.

If, in addition, the teacher acquires some practical knowledge of how to treat the various accidents that are liable to occur in school life, he may feel himself fairly well equipped for his work, from the sanitarian's point of view. Not that he will have learned all he needs to know. But he will have learned enough to be of material service to his children; enough to give him a desire for more; enough to encourage him in following up after graduation the subjects which he has studied in part before.

CAUSES OF ABSENCE IN TORONTO SCHOOLS DURING MARCH.

DR. JOHN FLEMING GOODCHILD.

The members of the Hygiene Section of the Ontario Educational Association took the liberty of asking the co-operation of the teachers of the Toronto Public Schools in preparing a report for the present meeting. The work was carried out for the purpose, first, to get facts as to the common ailments from which the children in our schools suffer, and second, to get a ratio for the different forms of complaints, that we might know what sort of troubles are more urgently requiring the attention of teachers, parents and medical men.

The investigation was made during the month of March in the present year, in thirty-five of the chief and largest schools in Toronto.

As secretary of this section, the privilege of summarizing the report has fallen to my lot, and I now beg to bring to the notice of the members and others present the facts as ascertained.

It is because there is influence being brought to bear on the Department of Education to add certain new regulations for the guidance of teachers, and because there is a strong movement towards making medical inspection of schools compulsory, that we attempted to make the investigation.

Though this report would be much more accurate and valuable did it cover a year instead of one month, still we can say without hesitation that a better month's work on the part of teachers and all concerned could hardly have been anticipated. The care and attention paid to the matter by the principals and teachers in almost every room in these thirty-five large schools is, I am sure, highly gratifying to the Society. In the few cases where careless and seemingly inaccurate reports were kept, use has not been made of them. Furthermore, in some sections of the city it is found that some of the parents seem rather in the habit of giving inaccurate statements as to the cause of absence of their children from school. In these cases the teachers themselves kept no report. The principals and teachers in such

schools generally had a meeting for consultation to decide whether the statistics they could furnish would be faithful statements of fact. Where, therefore, it was the opinion of the majority that wrong excuses were fairly common, no report was kept.

The two chief causes of error that would creep into this report, inaccuracy of statement on the part of the parents, and careless reporting on the part of the teachers, are therefore fairly well put aside. We have here, then, as far as the knowledge of the parent and teacher can give it, a statement of the number of days of absence of children from school necessitated by the complaints and illnesses I will shortly mention.

There are some fifty ordinary Public Schools in Toronto, not counting the one on the Island or the six schools in institutions like the Children's Hospital and homes of different kinds. The summarized report from the thirty-five larger schools, with their 12,000 or over children, is as follows:

THE NUMBER OF DAYS OF ABSENCE CAUSED BY,

Joint disease.....	1	Scalds	66 $\frac{1}{2}$	Appendicitis.....	269 $\frac{1}{2}$
Meningitis	2	Poisoning	68	Scarlet fever.....	269
Gout.....	2	Burns	74	Nervousness.....	271 $\frac{1}{2}$
Mouth-bleeding	3	Diseases of nose	74 $\frac{1}{2}$	Going to dentist	285 $\frac{1}{2}$
Paralysis	5 $\frac{1}{2}$	Bruises	86 $\frac{1}{2}$	Chicken-pox	299 $\frac{1}{2}$
Bites	13	Convulsions	87 $\frac{1}{2}$	Diphtheria	305 $\frac{1}{2}$
Loss of voice.....	16	Lameness	97 $\frac{1}{2}$	Rheumatism	317
Mental deficiency	16	Broken bones	98	Skin diseases	406
Deafness	18	Cuts	107 $\frac{1}{2}$	Ear-ache and disease of the ear	560
Dropsy	22	Neuralgia	112	Whooping cough	598
Consumption	22	Vomiting	115	Painful and diseased eyes	719
Boils	23	Swellings	116 $\frac{1}{2}$	Influenza	797 $\frac{1}{2}$
Disease of scalp	24	Heart disease	121	Bronchitis	803
Injury to back.....	24	Sprains	123 $\frac{1}{2}$	Measles	875 $\frac{1}{2}$
Rupture.....	26	Chorea	128 $\frac{1}{2}$	Toothache	921 $\frac{1}{2}$
Inflammation of bowels	27 $\frac{1}{2}$	Diarrhea	140	Bilious attacks.....	985
Nose bleeding	31 $\frac{1}{2}$	Abscess	140 $\frac{1}{2}$	Mouth and throat troubles	1025
Bones out of joint	41 $\frac{1}{2}$	Typhoid	147	Weak and run-down children	1042
Colic	45 $\frac{1}{2}$	Lice	163	Headache	1459 $\frac{1}{2}$
Pain in the back	57	Enlarged tonsils and adenoids	223	Colds.....	10,049
Hip joint disease.....	58	Indigestion	240		
Pleurisy.....	60	Pneumonia	247		
Rashes	62 $\frac{1}{2}$	Mumps	251		
Total days' absence during the month for illness					24,725
Total absence for all causes					38,305

This means that upwards of two-thirds of the absence is due to illness, one-third being due to other causes.

Looking into the six causes which most often prevent the chil-

dren from going on with their work at school we find the following ratio:

Colds, 100 days, made up of two to three days' absence for each pupil.

Headaches, $14\frac{1}{2}$ days, made up of one-half or one day's absence for each pupil.

Weak and run-down conditions, $10\frac{1}{2}$ days, made up of rather longer periods, a week or more for delicate children.

Mouth and throat troubles, $10\frac{1}{4}$ days, child generally a week or so away.

Toothache, $9\frac{1}{4}$ days, child kept away one-half to one day.

To continue the ratio for the purpose of comparison through the six next most common causes, it would run as follows:

Measles $8\frac{3}{4}$, bronchitis 8, influenza 8, disease and pain in the eyes $7\frac{1}{4}$, whooping-cough 6, earache and disease of the ear $5\frac{1}{2}$.

Beyond these twelve causes I would say that the Section of Hygiene need not go at present. The long remaining list can safely remain entrusted to the parents, doctors, boards of education and boards of health.

Of the twelve causes mentioned, it is only possible for me in the time at my disposal to say something about the first two; something about the 10,049 days of suffering from cold in the head, or head, throat and larynx; something about the $1,459\frac{1}{2}$ days of distressing headaches. The worst enemy of all to the child, as far as keeping him away from school is concerned apparently is the common, every-day cold. Not only does the cold prove an enemy in this way, but it is well known that many of the more serious diseases follow on from the simple cold as a result of the patient becoming weakened down in his resistance against disease; the germs of various infectious diseases the more easily find a place to multiply somewhere in the organism.

I would say, then, to any teachers present: Know all you possibly can about colds, especially as to causes, how to avoid catching, and the simple remedies to be applied when the cold is caught. To avoid catching cold it is needful to make the body resistant to the influence of cold. The cold shower-bath is of great value for this purpose. It may be used every morning or evening for from one to two minutes; or, if it cannot be had, sponging the chest and arms with cold water is very effectual. The water should be cold enough to produce a decided reaction,

bringing about the appearance of goose-flesh on the skin. As the body temperature and vigor are lowest in the morning, the evening shower is preferable for the delicate. Overheated rooms and too much clothing are to be avoided; it is well to see that the sleeping-room does not cool down slowly over night, but that it is properly cooled at bedtime. As is true of most other ailments, the avoidance of nasal catarrh involves also the keeping of the body in its best physical condition. The nasal passages will then resist irritants that in depreciated health they could not withstand. This is especially true of the inhalation of irritants such as dust or germs, which of themselves are not likely to cause nasal catarrh in healthy persons.

The bacilli of diphtheria and tuberculosis, influenza, glanders, the staphylococci and streptococci, the contagions of measles or scarlet fever are all liable to infect the nose, especially when the soil is prepared by nasal catarrh.

It is possible to avoid dust inhalations up to only a certain limit, but the amount of dust in households and schools should be reduced to at least a minimum. The greatest dust-catcher is the carpet, but curtains and draperies hold large amounts. In sweeping and dusting these articles dust is distributed over the room and remains in the air for hours. It is known that the air of our rooms contains many more microbes than that of the air over the city streets.

The dry air of heated houses in the winter is unfavorable to healthy conditions in the nose, the secretions become scanty, and the mucous membrane becoming dry prevents the elimination of dust in the normal manner. The mucous forms adherent crusts which are liable to crack and become torn off, injuring the epithelial coating of the underlying membrane, and so opening the way to germ infection.

It should be regarded almost as important to supply moisture to the air of houses and schools in winter as it is to supply heat. As a preventative measure against catarrh, I would say that probably every day when a child or adult is brushing the teeth an atomizer containing saturated solution of boric acid could be used for a few moments to spray the nose. Its daily employment will relieve any dry, irritated condition of the mucous membrane of the nose and throat, and act as a preventative of nasal catarrh by removing the dust.

In regard to the 1,459½ days of headache, it is well known that eye-strain is the common cause; still its importance as a frequent cause of this distressing symptom is not sufficiently appreciated. Stevens reports that in 100 consecutive cases of chronic headache in which the eyes were examined, he cured 61 by correcting the ocular defects. Gould says that out of 1,500 cases in private practice, he found 75 per cent. of all headaches and 95 per cent. of sick headaches were due to eye strain.

While not attaching too great importance to these statistics, they at least serve to illustrate in a graphic way the great frequency of eye strain as a cause of chronic headache. We are keeping well within the limits of safety when we say that of all cases of chronic headache met with in ordinary medical practice 50 per cent. are due to eye strain. In all cases, therefore, when a child is constantly complaining of headache, his parents should at least be notified by the teacher of the necessity of sending such a child to a competent ophthalmic surgeon.

I will quote the following paragraphs from Walter Pyle, of Philadelphia, in his article upon "Hygiene of the Eye":

"The pernicious influence of modern school life upon the eye, as well as upon the general health, is not sufficiently recognized by parents and teachers. Nearly all knowledge is acquired to some extent by the use of the eyes, and if the proper hygienic precautions to preserve good vision are not heeded, the evil effects of eye strain upon our bodies may become very serious."

"With the advance of civilization there is a constant increase of visual defects and of general physical degeneration among school children. The causes are many, and probably the most important are imperfect construction of school houses, imperfect lighting (I would say, an extremely common cause not only at school, but in the homes where the home-work is done), foul air, crowding, poor ventilation, long hours of continuous application at close work in schools, and the necessity for preparing, after school hours, frequent and trying examinations, and the poor print and paper of the text-books."

"The eyes of a child at birth are hyperopic and ill-adapted for close work. The ocular tissues are delicate and soft, and if the young child does excessive near work the pressure of the tense ocular muscles upon the eye-ball, together with the blood soaking the tissues from constant or prolonged ciliary congestion,

causes the coats of the eye-ball to become vitiated and bent out of shape, and refractive errors develop. There is unanimous opinion in the numerous statistical studies on this subject.

"Most school children's eyes are defective and generally astigmatic; the hyperopic eyes outnumber the normal and myopic, particularly in early school life. As the higher grades are entered, high myopia and progressive myopia with choroid disease become more numerous, till the proportion of near-sighted eyes in some of the higher continental universities is as high as 50 per cent.

"Much eye trouble may be off-set, however, by proper regulation of study and reading, and the use of proper glasses with frequent re-examination of all children who show symptoms of eye-strain. Much, too, can be accomplished in the construction of school buildings and the regulation of ocular labor in schools."

Taking into account the above facts, there can be no doubt at all of the extreme importance of the clause that the Association's Hygiene Committee on the 16th of February asked the Hon. Dr. Pyne, the Minister of Education, to add to the regulations of his Department, viz. :

"The teacher at the beginning of each school term shall make an examination of the eye-sight and hearing of every child in his or her department, and report to the parent any child having either of these senses defective.

"Also the teacher shall advise the parent of the necessity of sending such children to a competent medical man for examination."

Before bringing this paper to a close, it might be well to draw attention to the fact that in addition to about 1,500 days of absence due to headache, there were 719 days due to disease and pain in the eye itself, which means that there were nearly 2,250 days lost from these closely allied causes.

I have touched on two common causes of suffering in our children at school, but there are ten others of not a little importance; these all need to be studied and discussed. For the present we will leave the care of contagious diseases to the Health Department.

The thanks of the Society are due to the Board of Education, Inspector Hughes, and particularly to the teachers for their very kind co-operation and assistance in producing this report.

OVERWORK IN SCHOOLS.

EDWARD RYAN, M.D., KINGSTON.

The question of mental overwork is one that might well occupy the time of a meeting of this character. For mental overwork is a great mistake. "It is a mistake in so far as the mere acquirement of knowledge is concerned. For the mind, like the body, cannot assimilate beyond a certain rate. It is a mistake, too, because it makes study distasteful. It is a mistake, also, as it assumes the acquisition of knowledge is everything and forgets that a much more important thing is the organization of knowledge." It weakens the mind, it weakens the body, and in the end defeats the very object in view. It has been the source of numberless physical and mental wrecks. On the growth and proper development of girls and young women its effects are especially pernicious. Spencer: "In a child or youth the demands on vital energy are various and urgent. The waste consequent on the day's bodily exercise has to be met. The wear of brain entailed by the day's study has to be made good. Additional growth of brain and body has to be provided for."

The problem that should be kept constantly before our minds should be how to train our youth to produce a nation of the best men and the best women. Culture and refinement, the mental and moral elevation of a people, a high standard of the life intellectual, these qualities are the outcome of a generous and well-balanced system of education. To reach the highest standard of mental life we must also attain a high standard of physical life.

In the golden age of Greece, unsurpassed in all departments of mental activity, the physical well-being of her people laid the foundation of Athenian culture. The care and cultivation of the physical man preceded the mental activities.

In the ideal republic those found wanting in bodily perfection were eliminated from the foundations and from the functions of the State. Social conditions are changing in this country. In the early pioneer days people lived an outdoor life. The stern wring of necessity permitted no self-indulgence. The

earth, the sky, the forest and the streams were man's daily companions. From these great masters he learned his lessons. Mental overwork, in the form it is taking to-day, was neither a question nor an issue. The youth from early life was obliged to take part in the cultivation of the soil.

Thus the time spent in the open air increased the physical capacity of the student. It is worthy of remark also that until quite recent years male teachers were in the majority. Open air exercise was thus more encouraged, and the strain of study lessened, at least in a measure, by games and sports, in which the teacher led the way. In the primary schools at least female teachers are now almost entirely employed, and the stimulus to open air exercise is thus withdrawn.

Social life has also changed materially. It has become far more complex, more exacting, and, therefore, more exhausting, demanding a greater expenditure of nerve force even in early life. The physical and mental resisting power of the nation is being gradually lowered. Now, let us consider what we wish to grow on this unproductive soil. Modern education is day by day becoming more diversified, more complex. The subjects of study are increased and multiplied. Technical studies form part of even a primary education. There is an ever-increasing demand on the time, on the physical and mental powers, of the student. The hours of study are being lengthened. The natural competition among children, stimulated by the ambition of parents, leads to study pressure by day and by night. If we take the time occupied in going to and from school, the hours actually spent in the school-room, the hours spent in home work, more time is consumed than the labor unions permit for manual work. The continual strain of examination is a source of nerve pressure and exhaustion. It is not the actual time spent in preparation for examinations that brings the worst result. It is continual anxiety, the fear of failure, the supposed loss of caste among comrades and often, indeed, the dread of parental displeasure, that causes the strain and breakdown of many students, young and old. Worry, Osler wisely remarks, causes more trouble than work. "It is very fortunate there are idle people in the world. They save the race from too rapid degeneration."

The pernicious system of home work has much to do with nervous pressure. This work is pursued often under the greatest

difficulties. Exhausted mentally and physically, the student has to take up his burden again under the worst possible conditions. With poor light, lowering hygienic conditions, constant interruptions, and a system utterly fagged, the student undertakes another term of labor. I will say nothing of the vitiating practice of working in sleeping apartments, and then going to bed without a change of air. Richardson's "Health of Nations" quotes Sir Edwin Chadwick's London experiment: "He divided the boys of a school into two. One series worked half a day, the other all day. After a time they were both set to work together. The half-time school often beat the full-time school at school work and always at games." Nor is any account whatever paid to individual capacity or inclination. No matter how agreeable to the student certain lines of thought may be, he is not permitted to indulge them. No matter how obnoxious certain subjects may be he has no peace till he masters them. How else could he pass his examinations?

What wonder is it that under these conditions we are fast becoming a nation of neurotics! What wonder is it that many an erstwhile and promising life lapses suddenly into a condition of useless inactivity and remains fallow for years, if not forever? What wonder is it that under this constant strain and pressure and wanton wasting, crippling and strangling of the forces of nature, we are producing nothing of supreme intellectual value! M. Simon: "There are students, but no scholars. There is instruction, but no education. They make bachelors, licentiates and doctors, but making a man is out of the question. What they do turn out is a ridiculous little mandarin, who has no muscle, cannot leap a gate, give his elbows play, shoot nor ride."

What is the remedy for those conditions? There must be a return to simpler and more natural conditions. Physical and mental training and cultivation must go together hand in hand. More care, time and accommodation must be given to natural healthy sport and outdoor exercise and occupation. The teacher should have a watchful regard for the mental capacity of a student, and under no conditions should the margin of safety be approached. The hours of study should be lessened, or at all events controlled. Against the pernicious system of home work, as now conducted, I protest in the strongest terms. No work requiring intellectual strain should be undertaken at night. The

solution of mathematical problems and work of like character should be utterly prohibited. Reading of such a character as will entertain and relieve the mind may well be prescribed. The incidents of history, tales of discovery and adventure for the young, and the standard authors judiciously selected for those more mature will in the end prove a greater source of mental strength and culture. The present system of conducting examinations should be withdrawn or widely modified. The dread of examinations and the mental conditions occasioned thereby are prolific of the greatest physical and mental evil. Neither the love of learning nor the desire for knowledge for its own sake begot the examination craze. It had its origin in a lower sphere. Teachers had to obtain situations, institutions must have students, and what better recommendations could either give than that so many successful students were "manufactured" by them. The system is commercializing teachers and institutions and lowering the standard of both. Far better would it be to permit the whole educational term of the student to speak for itself. To state that an educational life would be retarded without a "system of examinations" is both mischievous and illogical. I should like to be informed what great intellectual periods in the world's history have been generated through a "system of examinations."

Now, as relief or as an antidote to mental overwork, stands the value of bodily exercise, games and sport. "For girls as well as boys the sportive activities to which the instincts impel are essential to bodily and mental welfare."

It is a fair statement to make that nowhere can be found better types of men than those produced by the great schools of England: Eton, Harrow, Rugby, Stoneyhurst, and others of like character. Yet in these schools all kinds of manly sports are encouraged, and on two or three days out of the week afternoon classes are suspended and the entire time given over to sports and games.

More space, more encouragement, is required in our educational institutions for physical culture and physical perfection, without which over-pressure cannot be restrained, and intellectual life can make but little progress.

MANUAL ARTS SECTION.

THE ESSENTIAL PRINCIPLES OF HOME FURNISHING.

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Our houses, our furniture and the decoration of our rooms are great formative influences in our lives. To have secured an environment so constituted as to meet simple needs in a simple, direct way, in which lives may be lived in peace and happiness, and where children may grow up in surroundings that make for the best citizenship, means more to the country than is generally supposed. A writer recently said that he had seen towns in the South which appeared to have been designed as backgrounds for lynchings, and I think most of us, on the other hand, have seen villages and countrysides whose quiet charm, open, sun-lit spaciousness, evident sincerity of purpose and glorious opportunities for freedom are silent influences for good whose worth it were difficult to overestimate.

These influences, of which we are largely unconscious, were powerful agencies in the production of objects on which we look to-day with pleasure and veneration. Life now is more complex than it formerly was. Men used to labor hard for days to make the objects they needed. Consequently the object embodied much careful thought, and once made was not soon thrown aside for another. Much of the work done in these olden times remains good art even to-day.

It is not the province of this paper to say much about the house itself, and indeed few of us have an opportunity to do more than to select a house already built. But as it is almost impossible to consider house furnishings apart from the house, a word or two here may help to secure a good view-point for what follows.

Most large houses, in addition to such necessary rooms as bedrooms, bath-room, kitchen and dining-room, contain a servery, a parlor, a reception-room, a library and a den. We know this, so when we, who cannot afford a mansion, go looking for a

house, we demand a fac-simile containing the same number of rooms, none of which is large enough to use. This is surely wrong. So here we come to the first and most important of what I have termed the essentials—"Use." I believe that every part of the home and its furnishings should be constructed with the idea of "use" paramount. It is not sensible to have a parlor or a reception-room too fine for anyone but the company, who come in for ten minutes, discuss their friends, neighbors and other airy nothings and depart. What is the purpose of a fireplace that never has a fire in it? Why are curtains, intended to regulate the light, always looped back? Is it true that we avoid the conventional gilded chair? What is the idea of a cushion on the floor and leaning against the wall? Every piece of furniture, every picture, every curtain, every cushion, should literally pay its way. If the chair is too fine to sit on, get rid of it, or else call it by some other name. Every part of the house, from the foundation to the ridge, and every piece of furniture, from the simplest kitchen chair to the masterpiece in picture or statuary, should satisfy the principle of utility, *i.e.*, each should either suit some bodily need or else should provide an outlook for the mind. This is the first essential.

Someone has said that it is a Herculean task to be more beautiful than our surroundings. How necessary it is, then, that our surroundings be refined in order that our lives may have the best possible opportunity to be "beautiful." That home furnishings should obey the laws of "beauty" is the second essential.

Beauty is scarcely definable, but it manifests itself in three principal modes—balance, rhythm and harmony. Balance means equal opposition. Rhythm is the power of two or more forces to carry the eye and the mind through intervals of space. By harmony we mean that the various component parts of a thing have something in common which bring them together in unity.

We say man is a balanced being; he has a left and a right, one the counterpart of the other. He has temptations and power to resist them.

A cushion top design consisting of one unit, repeated in each of the four corners, may be said to balance, and the unit itself balances if it possesses equal opposition. Rhythm is well understood in music. We hear the principal emphasis followed by

one or more subordinates. The ear and the mind easily travel from one set to the next and then to the next, and so we say the melody is rhythmic. We see a similar thing when we look at the design of a wall paper or the panels in a wall or ceiling. In music, harmony consists in the making of several sounds at one time, each of which, though different in the main, agrees with all of the others.

Beauty is revealed in harmony in furniture. The pieces contain certain subtle curves which mark it as Sheraton or Chippendale, or it is all the same rich shade of seal brown. It is harmonious. The dark moss-green of the carpet is caught up by the apple green of the walls and the denim cushions on the davenport and the blue filling of the screen with its highly conventionalized yellow flower forms, and we say: "The textiles of that room are harmonious and do not clash with the wall decoration."

To these three laws or modes of beauty I should like to add the law of "predominance." Every work of art is mastered by a predominant idea to which all else is subordinated. You would have your home beautiful. Then consider the predominate thought in the broad meaning of the word "home." Clearly it should be a place of comfort and freedom and thoroughly adapted to its great use—shelter: a place of shelter from wind and rain, from intense heat and severe frost, from the worries and cares of business. In order to fulfil these demands each room and every detail in each room should satisfy the laws of utility and beauty.

The following three maxims are based on a correct appreciation of the laws of beauty:

1. Of two equally beautiful objects choose that which, in its care, entails least work.

2. It is impossible to have a really beautiful home-life if our rooms are so crowded with fine things that the work of caring for them becomes a burden.

3. Art appreciation does not consist in having brown pictures of old ruins or of ability to name Raphael's Madonnas. An acute art sense is evidenced by having the common, every-day necessities in good taste.

My third great essential is largely responsible for beauty the second. It is simplicity. Beauty, I have said, is governed by the law of predominance and reveals itself in three principal

modes, balance, rhythm and harmony. These may be reduced to good form and good color, and these latter are easily obtained if the forms and colors are simple. Indeed, one might almost say that if the form and color are simple then the whole object will be beautiful. In this connection I cannot let the opportunity pass to rail a little at fashion. We really ought never to voice this word. "Fashion" seems to be twin sister to "fussiness," and is generally the antithesis of simplicity. Let us seek style, not fashion. Style is eternal, fashion is ephemeral. If a young lady should put on the dress in which her grandmother was married, and we should perforce admire it, then I should say: "That dress possesses style." We should aim for style, *i.e.*, permanent beauty, in our homes, and the easiest and surest way to obtain it is by honestly endeavoring to exclude each article which does not give a fair measure of service in a straightforward way.

The great governing law of the home is service, utility; and in so far as the furnishings obey the laws of balance, rhythm and harmony, the home will be beautiful; beauty is largely dependent upon simplicity, which in turn invites use. So here we have an endless cycle made up of essentials, utility, beauty and simplicity, each of which is, in a measure, dependent upon the other two.

The main point to consider in deciding the color-scheme of a room is its exposure. If the room is so situated that it gets floods of light when in use, we should choose a cool color as the predominance. If it has not sufficient window space, and this towards the north, we should take a warm or a light color as the basis of the scheme. Having definitely decided that the room is to be warm, or cool, or dark, or light, etc., we must consider the furnishings. They should suit the color idea, and must also satisfy bodily needs or else provide food for the mind. Costly furnishings will not necessarily give a good interior. This will depend on the extent to which the laws of use, predominance, balance, harmony, arrangement and simplicity have been fulfilled. Suppose, for example, that I have to furnish a sunny dining-room. The law of balance will cause me to determine on, say, a cool treatment with, let us suppose, green as the predominance. Carpets, wall-paper and curtains should be chosen to harmonize with the green. The furniture should be well

arranged and adapted to the use of a dining room. If I have striven for simplicity, the other laws will, within reasonable limits, not be infringed.

The relation of a room to its decoration and furniture and to the remaining rooms should be thought of. Having chosen a carefully planned scheme, follow it honestly. It should be graduated so as to culminate in the most important rooms in the house. If your home is already furnished, but not to your liking, have your scheme in mind, and as from time to time you make certain renewals, let them be in the direction of your plan. In going from room to room avoid sudden changes in style and color. If your house is small it is better to select one treatment with slight variations for all rooms. If the house is large, let the change from room to room be gradual. The fewer the colors, the more pleasing and restful will be the general effect. Many colors are like many voices, not necessarily discordant, but at least fatiguing. Let some color predominate. If the same color and material are taken for chair coverings and curtains, unity and spaciousness are secured at once. The parts of the room will appear to be bound together, and yet there will not be the crowded effect on the mind produced by several colors and materials. Balance applies in a color-scheme. If you have a simple neutral on the walls, then the carpets may be more pronounced in color and may contrast with the curtains and coverings. For example, if the wood-work is dark and the walls a flat, retiring, subdued ingrain, then the carpets might be a dull green or a dark blue contrasted with crimson curtains and coverings. The best color-scheme is secured from a dark floor up to a light ceiling, but not in tones of a single color. For example, warm brown for the floor, green for the wall, a lighter green with orange, dark brown, and lemon green in the frieze, and a pale grey for the ceiling. Then, with a dark trim and furniture of fumed oak, a very fine room will result.

In leaving this division of my subject, I wish to advise the careful study and testing before adoption of newspaper color schemes.

THE LIVING Room.

As has been pointed out, it is a mistake to have a house which is a miniature of a mansion. If possible, either rent or build

a house which has at least one large room, and as this room is to be the general meeting-place of the family, and planned to permit the homelife to go on smoothly and freely, I shall call it not the parlor but the living-room. I am personally rather averse to the ordinary dress-up, locked-up, free from light, close, stuffy parlor. It is gradually passing out of existence, but is still to be met with in some quarters. You doubtless remember the short reference to the parlors in David Copperfield's home. He says: "Then there are the two parlors; the parlor in which we sit of an evening, my mother and I, and Peggotty, and the best parlor where we sit on Sunday, grandly but not so comfortably." The former was really the living-room. In the latter they were grand but not comfortable, and doubtless glad when Sunday was over.

The living-room should have the most desirable location. It should have bright, sunny windows, so that if the sun shines it will shine there. Science has laid plain to us the healthful properties of sunlight. The living-room is to have more of us and for a longer time than any other room. It should then be the most beautiful, in its location and appointment. No decoration or added charm can equal the natural beauty of the play of sunlight and shadow over the walls, floor and furniture of a good room. If possible, there should be a fire-place with a real fire in it.

In procuring furnishings we should keep in mind the first essential principal—utility. The key-note of the living-room is "comfort," not "show," as in the parlor. Comfort depends on things to be used, not on decoration. Suppose that there is the further limitation of little money. We might tint the walls, design a frieze and stencil it on them at small cost. Then for a carpet we might procure a cheerful but inexpensive rug and keep as much money as possible for substantial tables, comfortable chairs and an inviting sofa with plenty of good cushions. If little can be spent on these, let us procure willow chairs and pine tables with plain, stained legs. Then, with denim cushions and table covers, sunshine by day and good light at night, a cheerful fire and good books, we have a room which will invite the soul, when the parlor with its cheap, tawdry glitter and its machine-carved three or five-pieced set, an effort to prove itself what it is not, simply nauseates.

Give me the room where the family delight to gather to read, to play games and to listen to stories around the fire-place, and I will show you a room that is, call it what you will, a living-room. Such a room exerts a silent influence for good in the making of honorable, sensible, healthy-minded citizens of our boys and girls. In it a man will forget business worries and the joys of lodge night, and a woman receive more calls than she will have time to repay.

THE DINING-ROOM.

The dining-room is primarily a room in which the meals are served. It should contain nothing that does not aid the purposes of the room. A sofa in a dining-room is incongruous. A side-board, table and chairs are the necessary furniture. A china closet is not a necessity, but if there is one, it should be placed in the dining-room and not in the parlor. A low plate-rail is both decorative and useful. Otherwise a simple panelling of walls and ceiling will prove more effective than pictures.

BED-ROOMS.

About bed-rooms in particular, it may be said that the fundamental principles, utility, beauty and simplicity, being kept, then the room will be correct. They are, however, very important, and should receive adequate attention.

THE CHILD'S BED-ROOM.

The cultivation of taste is largely coincident with the cultivation of morals. Once the aesthetic idea takes possession of the young and developing mind, lower pleasures and thoughts are driven out. The desire to seek, possess, and even produce the beautiful becomes a permanent and powerful impulse. Beautiful surroundings will teach the child a respect for order to an extent astonishing. This beauty must come from simplicity, not from luxuriousness. The latter breeds idleness. Chaste and restrained forms and simple materials exert a formative influence on children, and these qualities will subsequently be reflected in the character of these children. Certain colors excite, others soothe, while some depress the mind. Knowing this, we should not thrust children into a room regardless of the forms

and colors which it contains. The forms should be structural and frankly expressive of their purpose. The color-scheme should not be aggressive, but be simple and such as to soothe. The design on the walls or in textiles should be rational and not distorted. In childhood imagination is strong and imitation is an uncontrolled impulse. How desirable it is, then, that the children should be placed in a good room with correct furnishings and fittings. As confused thought comes from confused perceptions, it is vitally necessary that all impressions be well-defined and clear. Therefore, obey the law of simplicity. Children's rooms are very important and often receive scant consideration. What has been said about the bed-room refers also to the nursery. This in addition. Since I believe that environment has a marvellous effect on the young, I wish to protest against the too prevalent practice of making the nursery a snug harbor for partially worn-out furniture. There is a tendency, which I have noted in some children's play-rooms, to fit them with the furniture that has worn off its showy grandeur in the drawing-room, and is thought good enough for the children to finish. Think of all the different ways of harming the children by such practice. On the other hand, it is equally destructive and dwarfing to make the nursery a museum of the toys of all nations, a library of ill-used books, or a junk-shop of costly furniture.

THE KITCHEN.

The kitchen is an important room and merits attention. As elsewhere, utility is of prime importance. The ventilation and lighting should have received special attention in the house planning. The plumbing should be the best and open to the air and sunlight if possible. A color-scheme for the kitchen will be found efficacious and will assist unconsciously in making work more pleasant. Linoleum makes the best covering for the floor, and paint, Sanitas or wash paper for the walls. The sink, stoves, window, table and cupboards should be conveniently placed so as to save unnecessary steps. The utensils should be in variety, the best obtainable, and where possible should be uniform in color. The door from the kitchen to the servery or dining-room should have a device to keep it always closed, and the hinges should be blank, so that it may easily open by pressure from either direction.

FLOORS AND CARPETS.

From the standpoint of hygiene, aesthetics and comfort, the most desirable floors are of hard-wood. They may be oiled, filled and waxed. Rugs may be put away in summer, so that the room has a cooler appearance, and then relaid in autumn.

In small houses, where all the rooms are to be entirely carpeted, a good plan is to use one carpet continuously. The design should be small and not unobtrusive, so as to form a background for the furniture and people. If bordered carpet is used, the carpet should be in the form of a rug in the centre of the room, and not made to follow the ins and outs around a bay window, fire-place, etc. The unconventional flower in carpet is still seen, though its use is to be deplored.

The best designs are small geometric or highly conventional forms in a darker shade than the main ground, which should itself be dark.

Greens, blues and reds are most desirable in that order. Pale tints should be avoided.

A stair carpet should be of a strong, full color and without pattern. It is rather odd to see a horizontal surface pattern made to follow the different surfaces of a flight of stairs, with the design now cut in the middle, now showing larger and smaller parts by reason of the edge of the tread.

THE WALLS.

The walls, like the carpet and floors, should be a setting for furniture, pictures and people, and not more interesting than these. Generally speaking, walls should not have a spotty, confused treatment, as this distracts attention. If the walls have a paper with a pronounced pattern and strong pictures, then the curtains, chair coverings and carpets should balance these by being without pattern and in a uniform color. The best treatment for walls is pannelling or tinting with a stencilled frieze. Wall paper ought to be of unobtrusive color and design, so as to give a feeling of decoration, but so quiet that attention is not distracted from pictures, ornaments or people.

If a room is to contain high pieces of furniture, many pictures and ornaments, and all very good, then the wall treatment should be plain; otherwise the walls may have a more elaborate treatment.

CURTAINS.

The real purpose of curtains is to regulate the light. If a curtain cannot be drawn backward and forward at will, it is a meaningless accessory. Lingerie effects do not combine well with architecture. The more architecturally a window is treated, the less it need be dressed up in ruffles. Where muslin curtains are necessary, they should be a mere transparent screen against the glass, and if the windows are close to the street, care should be taken not to obtrude the luxury within on those outside. Large, richly-figured curtains close to the glass are wrong.

PICTURES.

Pictures give the owner daily companionship with some of the world's greatest interpreters. They lift one out of the thrall of drudgery and help to free the mind from sordid care. They should be of artistic value, suitably framed, appropriate to the room, harmoniously related in size and shape to the wall spaces, and hung at a level to be properly seen.

The frame is for protection and should not itself require protection. (Mosquito netting is in bad taste.) The frame should isolate and set off the picture or surround it with a space of silence; especially if the picture should be viewed from a distance, the frame ought to be wide.

The color of a picture frame is best if it is subdued or a neutral (black, white, grey) or gold. The frame should be lighter than the deepest darks or darker than the lightest lights. Pictures should be hung in the wall line, and not so as to project from the wall. Hanging pictures on a wall which is covered with pattern may produce odd results, *e.g.*, a heavy and ponderous picture may appear suspended from a bunch of wild roses. Pictures should not be too close to one another, as their colors will clash and so will the style of moulding. When one considers the great variety of colors in pictures, and shapes, sizes and colors of frames, it is seen how essential it is that the wall itself be very simply treated.

MOVABLES.

In purchasing furniture the following ideas may be of assistance:

1. Beauty of construction consists of the refinement of the-

necessary parts, not in the addition of parts solely for ornament.

2. Conversely, each part should serve its purpose in the most direct way.

3. Tapestry is pictorial, and is therefore unsuited for backs and seats of chairs, or for covers for cushions.

4. There is a present tendency to make chairs the seats of which are too deep and the backs have an improper slope. Test the comfort of a chair carefully before purchasing.

5. Avoid crudely colored wood, cheaply varnished or highly figured wood, beds with jig-saw heads, chairs with claw arms and legs, and tables with meaningless turned legs.

We are responsible for much of this furniture being in the market. A pedlar once cried, "Razors to sell." A customer said, "Your razors do not shave." The pedlar rejoined, "They are to sell, not to shave." This is the attitude of the manufacturers and merchants toward us. We buy, even demand certain poor stuff. They make it for us. If we will close out the effort to be fine, which is based on envy, and after using our eyes and memories will carefully question and reason, we will assist in creating a demand for better furniture, furniture whose outlines are strong and pure, well finished, and with a capacity to fulfil the function for which it was made.

BRIC-A-BRAC.

Note the following, arising from our essential principals, utility, beauty and simplicity:

1. Mere curios should be in a closed cabinet or in a museum.

2. Avoid celluloid, chenille, fussy lamp-shades, most of the pyrography.

3. Do not overcrowd the house with ornaments. Think of the time necessary to dust these useless and often tasteless things. The power to reject is a great test of culture.

4. Allow plenty of space, so that each object has its silence area.

5. Prefer the durable to the perishable. There is good art in stained glass, brass and iron, and such art objects are better than those which may be affected by sun, moths, or careless handling.

Ruskin, in one of his essays, makes a reader exclaim: "How

can we decide what we ought to buy? Would you have us buy what we do not like?" To which Ruskin replies: "No, do not buy what you do not like, but in all things remember that there is a wrong and a right. I would have you learn to know the right, and then buy that." So these are, I think, applications of the "Essential Principles of Home Furnishing"—utility, beauty and simplicity. Let us not have a piece of furniture, or an ornament or a decorative feature which is not useful, which does not literally pay its own way. Let us remember that to have our environment beautiful is to assist in making it useful to ourselves and ourselves to the community in which we dwell; and finally let us not forget that to obey the law of simplicity is a certain way to secure beauty and real usefulness.

All of these have their influence on life. Yet Emerson says: "A beautiful form is better than a beautiful face, and a beautiful behavior better than a beautiful form: it gives a higher pleasure than statues and pictures: it is the finest of the fine arts."

MANUAL TRAINING—ITS USES.

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Some subjects are so firmly entrenched in schools that no one presumes to question their right to a place there. This is the case with the subjects usually referred to as the "three R's." Any one who would now question the right of one of these to a place in a school curriculum would be thought to be devoid of understanding. Manual training has yet to establish for itself such a place. School boards yet question the wisdom of spending money on this and kindred subjects, and many refer to these as "frills" and "fads" and "spasms." Parents complain of the waste of time on art, nature study and manual training. Some occupy their time in counting the subjects enumerated in the programme of studies and hold up their hands in holy horror at thirteen different and distinct subjects having, they say, to be taught in Form I.

This array of subjects frightens many who sigh for the good old days of "the three R's," but with the exception of the constructive work and art, there is not so much that is new. Thirty or forty years ago those teachers who taught and did more than merely keep school, gave instruction in the subjects as outlined in the present Public School programme of studies, with the exception of those already noted. But with the great majority of teachers many of the subjects were neglected. How were other subjects taught? Truth compels me to confess, very poorly. Composition was managed in a most haphazard way when attempted at all. Reading was largely a matter of imitation. The arithmetic and grammar were learned by rote and rule. Those who sigh for the days of the "three R's" and more thoroughness, forget how wretchedly these were taught and mistake repetition and rote for thoroughness. They also forget that these were the days when the birch was the supreme and main incentive to work. Was there not a close connection between the kind of work required to be done and the incentive used? There is still a good deal of rote work in schools, but it is growing less and less, and will, I hope, soon be numbered among the things of the past.

The framers of the present programme of studies recognize that schools are not so much places in which subjects are taught as those in which human beings are educated. The purpose of the programme is to aid in this education. When we realize that it is possible to go through a programme of studies without being educated at all, then we shall hear less of the "three R's." No doubt, then, the purpose of your secretary in asking me to prepare this paper was to have me set forth my reasons for believing that constructive work should have a much larger place in our schools than at present.

There are two reasons which justify a subject being placed in a programme of studies: its educative value and its future utility. Has manual training, or, as I prefer to call it, constructive work, since this term has become with many synonymous with wood-work, any value as an educative agent?

1. One of the marks of a good school or of an excellent teacher is that of character building. What subject in the whole range of studies is so useful in developing accuracy, industry, perseverance and honesty, as constructive work? Are not these the very foundations of character? Although many will not agree with me, I am sure there can be no development of character of any kind without action. The mere learning of precepts or rules of conduct will never develop character; unless rules result in actions there can be no teaching. Now the very essence of constructive work, as I see it, is spontaneous action on the part of the child. To produce these moral effects there must be a large share of freedom to the pupil in the work he performs. The work planned by another is always lacking in inherent interest; whereas the work we ourselves originate, design, sketch out and then proceed to execute for ourselves is always interesting, sometimes morbidly so, for all unconsciously we are repeating our own selves. Hence when properly conducted, of all the work in our schools there is none better fitted for building character than constructive work, for there is no escape from what we have done. The work is definitely right or positively wrong.

The excellent moral results attendant on the manual arts are so well recognized that in all efforts at reforming youths who have gone astray, manual arts and allied subjects receive a foremost place. Now, on the principle that prevention is better than cure, why should these not have had facilities for practicing this

work provided for them and perhaps they might have developed into reputable citizens without the reforming.

2. Again, the mind of a human being is an indivisible entity. It is a unit. It cannot be subdivided into intellect, feeling and will. Hence all education must be a unit. There can be no such thing as merely intellectual education alone, or merely education of the emotional nature alone, or education of the execratory organs, the hand and the tongue, alone. All sided culture is necessary for the perfect culture of any one side of the mind. The power to think clearly and correctly can be developed much more rapidly and very much more fully when there is action of some kind, accompanying the exercise of the intellectual or spiritual sides. In other words, there is interaction among the various recognized phases of human activity whether intellectual, emotional or volitional. A training in any helps the others. Hence there is no such thing as a merely intellectual training alone. The attempt to give such alone always results in failure more or less pronounced. When training does not result in action, in doing work of some kind, then the training of the intellectual powers is deficient. This accounts for the fact that college bred men when taken out of their regular walks of life are often helpless.

This inter-relation of the intellectual and the volitional will at once dispose of the question: "Is there time for constructive work in schools?" Wherever this work has received a fair trial, the testimony has always been that better progress has been made in the ordinary subjects of the school curriculum. A proper knowledge of the inter-relationship of the various activities of a child would have enabled one to foresee that such would be the case. As it is, teachers and others have not foreseen the great advantage for intellectual training that lies in constructive work, and it is only now that some are beginning to appreciate the great aid that it is to this kind of training.

Once again, when we consider that the mind unfolds and manifests itself through the nervous system, it follows that the most effective training is that which calls into play as many different nerve cells as possible. The greater the variety of exercise the greater the number of these cells which are brought into play. It is well known that the part of the brain which has never been stimulated lies dormant, and frequently it happens

that a child receives no sensation because the nerve cells of the part affected have not been developed. Hence it is the boy that constructs that is the boy who thinks, deliberates, reasons, and draws conclusions. In the light of these facts, how important is it that as great a variety of means as possible should be used to stimulate brain activity? Now, there is nothing so good as work with the hands for stimulating the motor centres of the brain. Work is natural, hence it is the most healthy and the most convenient way of brain stimulation. It is only when mind and muscle work together that either realizes its highest efficiency. The result is a correlation of the powers of mind and body which produces a mastery of these powers and freedom in their use towards which all education tends. This is the reason why in the near future less will be heard of the "three R's" and more of the "three H's," the head, the heart and the hands.

Again, when it is remembered that the function of nerve cells is activity, that they are not content to be at rest unless when fatigued, it is easily understood why restlessness is a characteristic of children. Now, how better can this restless activity be controlled and directed aright than in the training which brings into active play the mind and the hand and calls out powers not developed by either the memory-process of language training or the discipline of mathematics?

3. The condition of people in Ontario has greatly changed within the past fifty years. Many are leaving the farms for cities and towns. Homes are no longer places where many of the necessities of life are made as they once were. As society becomes more and more complex, the range of work of any one man tends to become narrower and narrower, until we have the specialization of to-day. Now, if the best education is that which best trains a man to fill his place in the world's workshop; if the best system of education is that which makes citizens honest, happy, contented and industrious; if modern needs demand that the plain, common people receive an education to fit them for their walks in life; if common sense dictates that people should be taught such things as they need and can comprehend; and if these are the things which they will do every day, does it not become self-evident that it is time to change our old mode of training and adopt some system which is suitable to conditions as they exist in our province to-day? Does it not follow .

as a matter of course that the work in some secondary schools at least must cease to be as largely literary and linguistic and must become more and more industrial and commercial? As a preparation for this industrial and commercial course are not our educational authorities justified in introducing into the programme of the Public Schools art, constructive work and nature study?

When boys and girls leave our Public and High Schools as constituted at present, they know a good deal. They have gained considerable knowledge from books and oral instructions, but they can do little or nothing. Hence the prevailing work of the schools of to-day, mental, abstract and memoriter, as it is, must be supplemented by a manual, industrial, art and commercial education if the pupil is to become a doer or a director. At the present time there are appearing letters in the London *Times* pointing out how ridiculously inadequate is the orthodox system of training pursued in the great English Public Schools for the requirement of young men destined to make their own way in the world. In speaking of emigrants to Australia, one writer asserts that "at least ninety-nine out of every hundred of such emigrants would, after five years of colonial life, declare that, on acquiring the rudiments of learning, they would have gained knowledge far more useful to them later, in the course of three years spent in a carpenter's shop or on a farm, than during twice that period passed at almost any of the large Public Schools of England." What is true of England is almost equally true of Ontario.

Under the stress and strain of modern conditions the apprenticeship system has broken down. Industrial and trade schools have, in some countries, been provided to supply the training which the years of apprenticeship once gave. In these schools boys are taught to use their brains and their hands in making things that others need and use in daily life. Thus they are trained for the workshop and the factory. Commercial education is provided for those who desire to fit themselves for the office and the store. If the secondary schools of Ontario are to be required to give such a training, surely an earnest effort must be made to fit such pupils for a profitable course in them by giving more prominence to art and constructive work in the elementary schools.

Let us for a moment conceive that present commercial and industrial conditions had held sway at the time when schools for the masses became common. Would not our forefathers have seen to it that such subjects as fitted their children for the business of life should have their place in school? But at the time when men became seized with the idea of having schools for the masses and not for the classes, there was only one prevalent idea concerning the business of schools, viz., that of preparing for the humanities, or languages and literature. In spite of Comenius, Rousseau, and others, the great mass of educators had not yet recognized the place of a second group of subjects which is primarily concerned with nature, the external world in which man lives, studies which we call the sciences. The world moves on, however, so since about 1850 the natural sciences have won a place for themselves as important in secondary schools and universities as the humanities. The complexities of modern conditions have given rise to a third group of subjects, viz., that of applying a knowledge of the sciences to the needs of men. Hence, towards the end of last century, there were established many engineering schools, schools of technology, agricultural colleges, schools of domestic science, etc. Now, for efficient training in these schools, are not subjects comprised under the terms art and constructive work just as necessary as the "three R's" are for the humanities? Perhaps the comparison is not quite fair, for the "three R's" fill, it may be, a somewhat wider function than these, underlying, as they do, all the arts and sciences. Now, as there are to be secondary schools in which an applied knowledge of the arts and sciences is to be given, then it is evident that the subjects of art and constructive work in the broadest signification of these terms must come to form an integral part of our primary school work in spite of those who so clamorously and so unfairly speak of them as "frills" and "fads" and "spasms." At present in Ontario we are only making a commencement in these subjects. Within a few years, I believe, it will be seen that parents, school officials and teachers alike, will vie with one another in giving to constructive work of all kinds, art and nature study, the same care and attention as are now given to the "three R's." In this connection it must never be forgotten that a school in which manual training is taught is not a school in which carpenters or tin-

smiths or weavers are made, any more than an ordinary school fits a person for a learned profession. Each, the academic and the manual, has its place. One fits for higher work in the academic side; the other for more advanced work in the industrial, art, or commercial side. The foundation upon which any technical education may be built is being laid, and if the pupil ceases to attend school longer, the foundation of a broad, intelligent and sympathetic citizenship is laid.

4. Again, it is a safe pedagogical rule that the whole boy should be put to school; not his head alone, but his heart and his hands as well. This is possible only when constructive work of some kind forms an integral part of school duties. Experience proves that in many cases it is art in one instance or constructive work in another that awakens intellectual activity. Many examples could be cited of children being dull, slow, in short, stupid intellectually, until they began constructive work, when at once a transformation took place. These from being the butts of their fellows became their leaders, for the knowledge that one can do something as well as, if not better than, his fellows, exercises a powerful reaction upon the intellectual side. Hence, alertness takes the place of listlessness, brightness that of stupidity, aggressiveness that of timidity, self-confidence that of self-distrust, willingness to try that of disinclination to make an effort. Art or constructive work, or both combined, have been the means of awakening some who otherwise would have been content to pass through this life as mere nobodies or drones.

Then, again, the pupil who feels that he is being fitted in the elementary school for a course of training in one of the secondary schools, such as the Technical High School in Toronto, is content to remain much longer at the Public School.

There are some for whom the literary part of the work at Public Schools has no interest. These tire of school. If sent they are often troublesome, but when aroused by constructive work, and when they feel their breasts throb with conscious power, they not only remain much longer at school, but also control themselves much better and become much more proficient in their intellectual studies, hence they graduate into the world of life much better fitted for its daily routine. They have acquired not only a certain degree of manual dexterity, but have

become careful of the material they use, accurate in small things, precise in their work, honest in their doings, for when one expresses himself by making things rather than by using words, it is impossible to hide one's vagueness or ignorance by ambiguity.

Again, when one considers that the supreme test of the teacher's work is the power which his pupils have to express themselves; that thought and feeling are expressed not only in language, in painting, in sculpture, in music, in architecture, but also in all material products of human skill; that all the inner life is expressed in some form of outward doing, he will realize how important it is that pupils should have an opportunity of developing their manual mode of expression as well as their oral or written method.

So that constructive work may be a true mode of expression and not merely an imitative art, it must, as I see it, be freed from all such trammels as those with which Sloy'd enmeshed woodwork. It must be as free from mechanical regularity as is written composition. After pupils have learned to write and spell with a fair degree of facility, consider the stupefying results of requiring all the members of a class to write compositions in the same words, in the same paragraphs, arranged in the same order, and it seems to me you have a parallel case to Sloy'd, at least as was illustrated in Ontario.

Ontario to-day wants men, men who can do something, men who have learned to do by patient endeavor, by persistent seeking, by insistent knocking. Such men are in demand everywhere. The helpless man, however much he may know of the mythology of Greece and Rome, of the exploits of Jupiter and Hercules, or of the campaigns of Hannibal and Alexander, is out of place. He finds it difficult to discover a niche wherein he may earn an honest living.

To meet the present conditions in our province, there must be a great change in our Secondary Schools. Institutes must be provided for those who, after receiving an elementary training in the broadened and enriched curriculum of the Public Schools, desire to fit themselves to face the wider range of duties demanded by the fact that Ontario is more and more becoming a manufacturing province. A number of our present High Schools must be converted into Manual-Arts High Schools.

These will not displace entirely the present literary and scientific course, but will supplement the culture which is given by the traditional subjects, by the culture which comes from correlating and co-ordinating the manual and the intellectual. Thus, the problem of giving a truly practical education will be solved, and by practical is meant not a merely utilitarian education, but that which aims at upbuilding character. As ever, the good, the true, the beautiful are to-day, for all that makes life worth living, more practical and more ideal, than what is merely utilitarian. The spiritual is still as ideal and still as practical as when we were told that man should not live by bread alone. Who is so helpless as the man who has handicraft alone without a broad and generous culture? Who is so little fitted to adapt himself to changing conditions as the man who, limited by the traditions of his craft, works by rules of thumb and has few ideas about matters beyond his own trade?

In conclusion it is believed that the following propositions have been established:—

1. Constructive work is a great aid in character building, by developing carefulness, accuracy, industry, perseverance and honesty.
2. Constructive work is necessary to the complete development of the intellectual powers by bringing into play parts of the brain which otherwise would remain undeveloped, and by causing mind and muscle to interact upon each other.
3. Constructive work is necessary to fit pupils to enter upon a higher and more complete course of technical training rendered imperative by the conditions of modern life.
4. Constructive work is required to awaken those for whom literary and linguistic work has no interest, and is necessary to train these in habits which are essential to future success in life.
5. In many cases, constructive work is essential to the awakening and the training of the powers of expression.

PRIMARY CONSTRUCTIVE WORK.

MISS ALICE A. HARDING, TORONTO.

The fruition of thought is expression. In primary classes, the manual arts—modelling, drawing, paper-cutting, and construction—should be presented, not as specific subjects in the daily programme, but rather as related modes of teaching. They should be regarded as an aid in the development of the general course of study. Or, in other words, the arts in the lower classes should be the free expression or index of the primary child's thinking, and should be closely related to his life in the school and to his environment in the home. In short, constructive work is an elaboration of all other work and deals with processes of *doing, with life itself.*

In the past, education dealt with processes of *learning*. Through study of the child, we have found that he is interested in *things*, and that the root of mind growth is in sensory training.

In speaking of the primary child, we mean one from about six to ten years of age. At this period his education is chiefly through the senses. His interests are seen by his activities. He loves to examine, to construct, and to decorate. His expression in language being limited, he, naturally, turns to the manual arts,—*making* and *drawing* are the vehicle for the interpretation of his thought and are the revelation of his personality. The play-spirit and the power to symbolize ideas are very clearly characteristics of this stage of growth, and he should be afforded opportunities for freedom of expression, not for the sake of expression itself, but because of the something in him, which must tell its story to others. This personal word to the world is the expression of the *immortal* part of all who leave behind them in language, in picture, in song, and in marble, a part of themselves. “Goethe said that his works, taken together, constituted one great confession; and this is true of all creative men.” Thus, we see the *purpose* of the graphic arts in primary constructive work to be of two-fold value educationally; first, as agents in development; second, as agents in social life.

A consideration of the *developmental* value of the arts, shows training of the physical, of the mental, and of the moral life of the child. On the *physical* side, manual work as an educational factor develops sense-observation and sense-perception, including that of *touch*. Opportunities are afforded not only for freedom of expression, but also for free muscular movements. We must early incite motives for original invention and for self-reliant activities. Exercises developing precision, accuracy, technical skill and application of processes will follow the revelation to the child of his own power. But it is essential that we give him the chance to gain muscular control, else how can he co-ordinate his ideas?

On the *mental* side the manual arts include much. They deal with common things. Teaching is concrete. The world and its activities become real. The child's questioning and descriptive powers are quickened. His imagination is stimulated. The best opportunities are given for motor-training which lays true apperceptive foundations on which the pupil can build other knowledge.

The training given by manual work on the *moral* side is of especial value. It is very apparent that the little ones just love *making things*. The work is all undertaken in the play-spirit, the true method of educating young children, and coincides with the conditions of childhood, with its interests and instincts. Therefore, the result is that manual training is a lesson undertaken *joyfully, willingly, understandingly*, and with the utmost co-operation. Something definite and tangible is achieved and joy results in that achievement. There is also a relaxation which is of splendid influence and power, for mental and manual exercise is alternated.

A pupil who is not mentally as alert as his neighbor may be digitally skilful. In this work he has the opportunity to show his power. His individuality can assert itself and he feels his inner self to be recognized by others. Natural and rational relationships are called forth between the teacher and her class.

To sum up the *moral* training given by primary constructive work, we may say that the grandest opportunities for inculcating the highest qualities in character are given, for the child is *doing for himself*, and in learning cleanliness, orderly arrangement, attention to detail, economical use of material (nothing

to be wasted), perseverance, honesty, accuracy, the disposition to mind his own business, quietness in working, self-reliance and a true respect for labor and for work, involving a regard for the use of things for himself and for others—the real altruism.

As *socializing* agents, the arts deal with life itself, that is, with the home life, the school life, and the community life of the child. By interesting him in processes of doing, he may be led to acquire information regarding the progress of the race. So a connection is established between the narrow precincts of the schoolroom and the busy, full, outside life of the world. The significance of the life in the world when made to mean something to a child leads him to realize his own selfhood, and with this self-realization he will later be prepared to adapt himself to his own sphere of action and to mould conditions to suit his own desires, needs and aspirations. He will shape his own environments. Not in our surroundings, but in ourselves, is our success or our failure. Because of the restricted, artificial life in cities, children under these conditions need the development to be given by manual training, even more than those born under more primitive conditions.

In teaching this subject, then, it would seem that the following points ought to be kept clearly in the teacher's processes:—

1. That the subject of the lesson should be closely related to the child's instincts and interests.
2. That it be closely related to, and be the outcome of, other parts of the course of study; that is, that it have a use which is plainly felt by the child.
3. That it be decidedly useful for the physical and the mental co-ordination of the child's powers.
4. That it must definitely and beautifully train in the growth of the stable qualities of manhood and womanhood, leading to a disposition for right action and a respect for the dignity of labor.
5. That free invention, the expression of the soul, be allowed scope, the pupil being encouraged to put himself in the modelling, in the free-cutting, or in the construction work.

With special reference to free expression or original work, or, as it may be termed, creative self-activity, we aim not at uniformity but at unity. This is especially the foundation on

which to build the later processes which follow, when the work-spirit supersedes the play-spirit in the growth of the boy or of the girl.

In developing this originality, or rather in calling it forth, one can plainly see that the medium of expression should be one easily and readily worked upon or worked with. We all know the universal passion of the child to make mud pies and to mould dough on mother's baking day. We have had no material in Toronto comparable with a substance which is now in use, called Plasticine. It is a modelling paste of gray color, very soothing to the eye and well adapted to the requirements of the child, for it is extremely sensitive to the touch, and it lends itself responsively and expressively to the free, spontaneous handling of the children. We have had nothing which has awakened and stimulated the perceptive and the creative faculties of the child as readily as this modelling medium. It will keep for years if not exposed to the atmosphere, and is thoroughly antiseptic and cleanly. If it should harden a little kneading with vaseline will reproduce the necessary plasticity. The training with this material is, of course, *eye* training, *ear* instruction being secondary. The left hand should have a good share in the work, and all work should, of course, be closely related to the interests of the pupils. Modelling is extremely useful at the age when sense-impressions are strongest.

Free-cutting or work with the scissors also provides a splendid method for the telling by the children of their own experiences. Cutting from poses by the pupils, from objects of interest about which we have talked together, followed by memory work, certainly gives a most interesting and definite process of training in co-ordination in seeing mass, in seeing relationships and outline. It is a valuable means of eye-observation in the knowledge of form. In the free work the teacher has only to exercise tact in keeping the efforts of the child from being desultory and aimless, while respecting his flights of imagination.

As we have seen that the manual arts should be the expression of the growth of other studies and not a distinct course, we have thought that correlations surrounding instincts and interests existing in the child may be suggestive, although, let it be said here, that originality and spontaneity of expression

should exist and be developed not only in the child but also in the teacher. Both teachers and pupils should take the initiative and do original work.

Primary constructive work, centred about the home and its activities, in which mother is the central, guiding force or power.

The days of the week:—

- Monday—Washing day.
- Tuesday—Ironing day.
- Wednesday—Mending day.
- Thursday—Shopping day.
- Friday—Sweeping day.
- Saturday—Baking day.
- Sunday—Rest day and holy day.

Monday—*Modelling* in plasticine of materials suggested by washing day. *Free-cutting* of tubs, washboards, pails, basins, clothes on line and so forth. *Construction* of house, table, stove, etc. In geography, talks about water, clouds, and vapor. In reading, the story of a drop of water. In language and spelling, relate work to this topic.

Tuesday—*Ironing Day*. A talk on ironing day, beginning in the kitchen leads to the mention of coal and iron, hence to the miner and the blacksmith. Gems, songs, stories, all should be part of the central thought. “From what country do we get coal?” leads to our geography and to the daily life of the times when one of the little ones tells of the talk in the home about the coal strike.

Wednesday—*Mending Day*. This suggests a language talk on the *value of little things*. What is the meaning of the proverb on the little card of mending cotton, “A stitch in time saves nine.” Our literature will include many gems on this thought, and we may profitably tell the story of “The Little Hero of Haarlem.” Our ethics will bring in the value of the *quality* of an act, of its *fineness*, not of its largeness. The application will lead the children to *think*, not to tell, what they can do to help brighten the day for others, and thereby for themselves. Number, spelling, reading, and writing are easily related here.

Thursday—*Shopping Day* needs no suggestions. It includes and may be included in all the subjects on the programme.

Friday—*Sweeping Day* suggests a talk on the Southerners, the negro race. It treats of the growth of corn. A conversation should follow on Booker T. Washington and the Tuskegee Institute. A wholesome reverence for those of different color, those "made in ebony," will incidentally tend to eliminate the mocking spirit of meanness toward the black race. Literature on cleanliness, a talk on dust and its dangers, a hygiene lesson on the care of the skin, form a natural sequence here.

Saturday—*Baking Day*. A talk on why we need to eat leads to foods and their preparation. Modelling is used in connection with articles used in baking. Free-cutting of kitchen utensils. In construction work make manilla tables set with white paper cloths, nicely fringed, and decorated with flower centres and supplied with paper dishes. Incidentally, ethical training on table manners in the form of play, may be given, the pupils acting the parts; also, refinement of manner at the table may be beautifully impressed by telling a story, original if possible, inculcating the definite points to be developed. The best teaching here is done incidentally, not directly, as the latter leads to self-consciousness on the part of a sensitive child, than whom there is none better fitted to catch the spirit and essence of a story. In geography, baking day suggests talks on "Where our food comes from?" "How we get it?" Thus the whole field of "*Transportation*" is opened up and it forms a most interesting and exhaustive topic for correlation. Following directly from this in logical sequence and branching out from the child's *home life* we are lead to the *community life*. So we talk of the different peoples of different lands where our food grows, of their occupations, of their means of shelter, of the games played by the children, of the animals, and so on. Ample scope for the expression in the different media of the interests aroused may be given.

Sunday—*Rest Day and Holy Day*. This is surely connected with our opening exercises and suggests our Golden Text

of the S.S. lesson lately. The idea involved in this day is most wisely developed by relating to the creation of the world. The order of creation arouses centers of interest including all created things. The day on which God rested offers the starting point for talks on proper observance of the Sabbath, so our language and ethics are related to the manual expression of the church, the S.S., the people, the bell, the organ, etc.

Many opportunities for work in primary construction may be found in lessons on occupations, in lessons on the lives of primitive peoples, in lessons on holidays and special seasons, in nursery rhymes as well as in those on the immediate setting of the children's lives in the home.

Always, however, the teacher should keep before her this thought,—*the child himself must be the centre of the course of study.*

Initiative power and ingenuity in the teacher are an essential in the successful teaching of primary constructive work; correlation and co-ordination being but the demand for unity in achievement.

It would seem that with a restricted and lengthy curriculum we were facing an impossible task. But is it not true that the greatest power for good is the unrealized ideal embodied in one's effort? It is not how much success has come to us in life, but how much service we have given, our highest happiness resulting from the joyousness of helping others and from the outer expression of our highest and truest selves.

When work rises into creativeness it is no longer full of strain, it is the natural overflow of a rich and deep nature, or as Hamilton Wright Mabie expresses it, "The highest achievement of active life is to turn work into play; and to rise, in any department of work, from apprenticeship and artisanship to the ease and freedom of the artist, is to attain the most genuine and satisfying success which a life of activity offers."

*NATURAL METHODS IN TEACHING MUSIC, AND THE
VALUE AND RELATION OF SONG TO EDUCATION.*

MISS ALICE A. HARDING, TORONTO.

True art is the outcome of feeling. In music we are training the *inner* rather than the *outer* man. It would seem that in the teaching of our children we have been considering the *material* more than the *spiritual* element. Yet no one can invent, manufacture, or buy any substitute for depth of feeling, for the tender, sensitive heart, for quickened sympathies, for clear imagination, for generous judgment of others. On the capacity for this heart power depends one's highest happiness and joy in life. And as educators of early childhood we are afforded no greater opportunity for the culture of sensitiveness to truth, of love of beauty, of ideals and of humanity than in the teaching of singing. The materialistic, critical and utilitarian tendencies of our time sufficiently demonstrate the need for the development of the *real*, that is the spiritual side of the child.

We are a unity of body, mind and spirit. These three existing in full co-operation make an abundant, buoyant life, which may be expressed in the one word—*joy*. Fullness of life expresses itself in song. Music is alive. It is the outcome of the joy of life. It breathes happiness, love, the giving of the inner self out. It is others-regarding. Song is the expression of the *play-spirit* and as such must be free from friction, irritation, repression, and full of spontaneity and of the social sense, that of companionship. The most important thing in song—the color of tone—cannot be described. Yet this is the essence of influence in singing and it is the active and retroactive agent in the growth of the physical, the mental and the emotional life.

Nothing widens the chest more than correct, artistic singing. As a means, then, of physical culture for children, singing should be cultivated, in order that the lungs and the thorax may be strengthened, thereby increasing the whole physical vigor of the pupil. The chest of a child is more expansible than that of an adult. Training in correct breathing and in singing will, therefore, lay the foundation for the broad, deep

chest of maturity so indispensable for the satisfaction of everything else in life.

But music has not only a *vital* value; it has a distinct *psychical* value. Sound appeals to all who can hear. Musical tone is practically comprehensible to all and exists in all if it can but be reached. The little babe in the cradle listens with pleasure to a song. Its mother breathes her love to it in this way, and what words as yet, cannot tell it the tones of her voice, clear and low and sweet, express fully. As life advances the influence of music is still magical. Under the spell of sweet sound men have felt and acted as a unit. They have forgotten themselves, their surroundings, the *actual*, and have shown the inner or *real* self. Music reaches through the ear, the heart of the listener, and touches deep below deep of feeling.

Nevertheless, music to which children *listen* cannot take the place of *their own singing*. While the latter has been shown to have great value in increasing the vigor of the whole physical constitution, it also affords wonderful opportunity, not only for mental and spiritual growth, but for the free expression of this growth. For, having awakened the thoughts and emotions of the little ones the educator should aspire to produce the harmonious development of intellect, feeling and expression. Therefore, definite *achievement* in the production of sweet, true, musical tones indicative of *states of feeling already existing*, should be made possible.

Having considered the value and relation of song to education, we may now think for a short time of methods of presentation in this subject.

Teaching may be of two kinds, *logical* and *natural*. These are best defined by illustration:—

If we were going to build up a human body on the logical plan we would have first as foundation the bony framework, and on this we would place the muscles, flesh, nerves, and so forth. Lastly, we would animate the whole by *breath*, which is life. In the *natural* plan, the beginning of life is the living organism. In plant life the logical method would be root, trunk, branches, leaves, and finally a tree. The true or natural method of growth shows the whole plant fast asleep in the heart of a seed. In language, according to the logical method of teaching, procedure would be as follows:—letters, words, sentences and grammar. After awhile we might expect the child to talk a

little. But nature says listen to pure, sweet tones, to clear expressive language, and learn to speak without knowing it. In music the logical method is theory, notation, dry facts, technical terms with no relation to the things for which they stand, *eye training*. Contrast with this the natural method which is essentially *ear training*. Music being expressive of the heart, of the joy of life, *the thing to be taught*, the *living organism* is sweet, full, beautiful *tone-color* called *song*.

As Kindergartners and Primary teachers, we aim through the culture of *song* at the full and free development and expression of the vital, the mental, and the spiritual powers of the children. We are one in the highest quality in the teaching of this subject. However, our methods are necessarily different. In the Kindergarten your singing is for the most part *accompanied*. We trust that the children have the piano as their accompaniment and that the case is not reversed.

In Primary classes it is *unaccompanied*. Your teaching is by *imitation*. Our teaching should be by *pattern*. For, as soon as the tones of the scale are known there should be independent, thoughtful tone production on the part of the pupils.

In teaching, the term method may be understood to mean *what* we do and *how* we do it. It would be impossible, as well as inadvisable, to endeavor to outline in a few moments the work of a term. Consequently, the indication along general lines of what is accomplished is all that will be presented.

One often hears the phrase,—we should like to learn certain methods of teaching in order that we may get better response from our pupils. Are the *teachers* not lacking in responsiveness themselves? Should they not seek to respond to the nature and soul of the child? By meeting the natural conditions of the period of child growth under our care we shall have no need to worry about responsive, interested, intelligent singers. The child with whom the Kindergartner and Primary teacher have to deal is one whose education is largely through the senses. Therefore, *sensory training* must be the natural method. And the best and only teaching at this stage must be patterned after the educational laws given, not only to Kindergartners but also to all teachers, by Fröbel.

The play-spirit and the readiness to symbolize ideas are clearly marked at this time. Consequently, methods of teaching must be such as to allow freedom of expression in activity, in-

gesture, and in speech. *Sense-perception* and *observation* must be trained so as to furnish an *apperceptive* background to which new knowledge can be related. In short, *we must play our singing.*

We must not force our grown-up ideas on the instinctive play life of the child if we want willing, enthusiastic expression. The utilization of play is the prime factor in the education of the young, in all branches. It is said that in the sugar maple tree there are two kinds of sap, the *sugar* sap and the *growth* sap. In order that the fluid drawn from the tree be sweet, it is necessary that the sugar sap which is in the topmost branches flow down, before the growth sap from the roots can flow up and reach it. If for any reason, such as poor location or lack of sunny weather, the process is reversed and the growth sap rises before the sugar sap flows down, the result is a bitter, watery fluid. If we comply with the conditions of child growth in the education of song the process will result in sweet, joyous, true tones. And it will soon be but in memory that we shall hear some teacher saying to her little ones, "Sing now, sing." Perhaps, after the delicate vocal organs have been used as long as or even longer than is deemed advisable by competent authority, viz., twenty minutes. Added to this the children may not have been given the opportunity of taking the standing position which gives the most freedom in breathing, and, therefore, in singing. May we also add, that a rational, natural teacher will not try to exact a physical impossibility from very young children, viz., *volume of tone*. She will never require more than can be given, namely, *sweetness of tone*.

One of the first lessons which is taught is the distinct contrast between sounds, viz., those which are harsh and those which are sweet. This lesson is one of sense impressions, and is developed by illustrations which appeal to the ear. On the one hand, chairs, tables, etc., are moved carelessly, slovenly walking is heard, articles are allowed to fall. These sounds are readily described as *noise*. On the other hand, a sweet song is heard and these sounds being described as pleasant, sweet and lovely, the term *Music* is given. Hence, for reference in future lessons, a definite apperception has been formed, as the pupils realize that in order to have *music* we must have *sweetness of tone*.

In voice work, we begin by taking gentle Delsarte-exercises, in the standing position combined with breathing. Pupils, when seated, have explained to them the nature of the lungs, hence they understand why the back must not rest against the seat, if free play is to be afforded in breathing. Then they are asked to send joy, love, good-feeling to the teacher, using facial expression only. This is followed by the sounds *ah* or *oh*, called forth in the form of games, to produce fullness of tone, without the use of the words loud, soft, or medium. The *idea* is expressed in the play spirit when the voice has to reach one across a pond, or on a lake, or in a wood. Illustrations, such as climbing hills, flying around the room, skating, etc., are used to get expression in tone.

In developing the tones of the scale we apply directly for illustration, to the pupils in the room, to objects in the room (so that anything and everything will suggest music), to nature, and to life in general. For instance, the *scale* may represent a *family*:

Doh is the father; *soh* is the mother; *me* and *te* are the children, *te* having the coaxing quality of the youngest and being so fond of its father *doh*. *Ray* is the rousing, spirited soldier-brother, suggested by the picture in the schoolroom of "The Knights."

Fah may be the grand cathedral with the great organ and the stained glass windows, or it may be represented as one little boy whom we know expressed it when he said that the tall pine trees always made him think of *fah*. Nothing was said of the awe-inspiring quality in the *fah*-tone, but who will say that the emotion did not exist in this little fellow's heart, and that it was not distinctly felt? Then, again, *lah* represents the gentle, little girl *me* crying, when her fingers were so cold on the sleigh-ride, or when she hurt herself running. The process is the *thinking* of the tones leading to *feeling*—these almost simultaneous in action—and resulting from these is the vocal expression. In Time or Rhythm we refer to something which can be felt sensuously—the pulse, the heart throb, the beat of the drum. Rhythmic exercises are, of course, intended to develop beauty of movement. Is there real educational value in these exercises when conducted to the monotonous and senseless repetition of nursery rhymes such as "See-

saw, Margery Daw," or "Bean porridge hot, bean porridge cold?" Should we not when using the vocal organs in connection with rhythmic exercises, use one syllable only, as *lah* for example? What is the answer which the higher *spirit-value* of song gives to this question?

In our songs, we have the pupils bring pictures embodying the story or idea of the song. We aim from the perceptible material to reach through the symbolic, the spiritual. In some way, new vitality must be created in the songs so that they always *mean something*, else, better not sing them. Correlate and co-ordinate with everything and every lesson possible. Just here, it may not be irrelevant to say that where there is no piano, and this is not always an evil, the suggestion is given that a tuning-fork would prevent the haphazard guessing of key-notes. In *Two-part* singing we test the boys' and girls' voices, placing all in the part for which they are best suited. The harmony is very attractive to primary children and is best taught by ear and by the help of hand-signs. The children listen to the combination sound when both parts are singing and by referring to mental effects of tones the process will proceed successfully, especially if the play-spirit be kept constantly uppermost.

It would seem that we had described a *mode of teaching* rather than a *method*, for nature teaches patience and diligence in growth, rather than sharpness of detail. We have endeavored to describe the path along which we should travel, in the teaching of singing. But the road is not the destination, and much, if not all, depends on insight and temperament. The spiritual does not readily lend itself to expression in words—it seems to become somewhat material—for it is something to be felt and seen rather than something to be spoken. Singing, which is the expression of the inner life of the pupils, sends a joyous thrill through the school atmosphere, thereby vitalizing all other work and stimulating and inspiring ideals of conduct and an appreciation of the true, the good and the beautiful. The source of power is still in the round tower of the heart. Sound emotion gives fineness to the bodily life, makes fruitful the mental life and gives power to the soul life.

In our world, to-day, who are the personalities of power? Are they not the *live* souls, those who *are* something and who *do* something?

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The Proceedings of the Forty-fifth Annual Convention, held in Toronto, April 17th, 18th and 19th, 1906, are ready for distribution. The volume contains the Minutes of the General Association and of the Departments and Sections, together with all the addresses given before the General Association, and the principal addresses delivered before the Departments and Sections. The Proceedings are published at twenty-five cents per copy, with a reduction of forty per cent. on all orders for twenty-five copies and upwards. When less than four copies are ordered, twelve cents per copy must be added to cover the cost of mailing. Back numbers may be procured from the Secretary.

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The regular course of instruction will consist of Four Sessions of eight months each, commencing October 2nd. There will be a distinct and separate course for each of the four years.

The lectures and demonstrations in the subjects of the First and Second Years will be given in the Biological, Chemical, Anatomical and Physical Laboratories and lecture-rooms of the University.

Attention is directed to the efficient equipment of the University Laboratories for instruction in the various branches of the Medical Curriculum. The new building of the Medical Faculty has been completed at a cost of \$175,000.00 in the Queen's Park, and affords extensive laboratory accommodation for Pathology and Physiology which is unsurpassed. Didactic instruction in the final subjects of the Medical Course is given in the new lecture theatres.

To meet the requirements of the Ontario Medical Council a course of instruction during a fifth year will be conducted. This will be entirely optional as far as the University of Toronto is concerned.

Clinical Teaching is given in the Toronto General Hospital, Burnside Lying-in Hospital, St. Michael's Hospital Victoria Hospital for Sick Children, and other medical charities of Toronto.

There are special Research Scholarships offered to graduates in Medicine, and every opportunity is now afforded for Scientific Research Work in any of the various laboratories of the University, under the direct supervision of the Professor in charge.

The Faculty provide four medals for the graduating class (one gold and three silver). There are also scholarships available for undergraduates in the First and Second Years; these are awarded to the candidates on the results of the annual examinations.

Further information regarding Scholarships, Medals, etc., may be obtained from the Calendar or on application to the Secretary.

FEES.—Lectures and Demonstrations: 1st year, \$100; 2nd year, \$100; 3rd year, \$100; 4th year, \$100.

Registration for Lectures, \$5. Registration for Matriculation, \$7. Annual Examinations, **each**

\$14. For Examinations in Practical Chemistry, 50c. For admission, *ad eundem statum*, \$10. Degree, \$20. Hospital Perpetual Ticket, \$34. Lying-in Hospital, \$8.

R. A. REEVE, B.A., M.D., LL.D.,
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A. PRIMROSE, M.B., C.M.,

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Biological Department, University of Toronto

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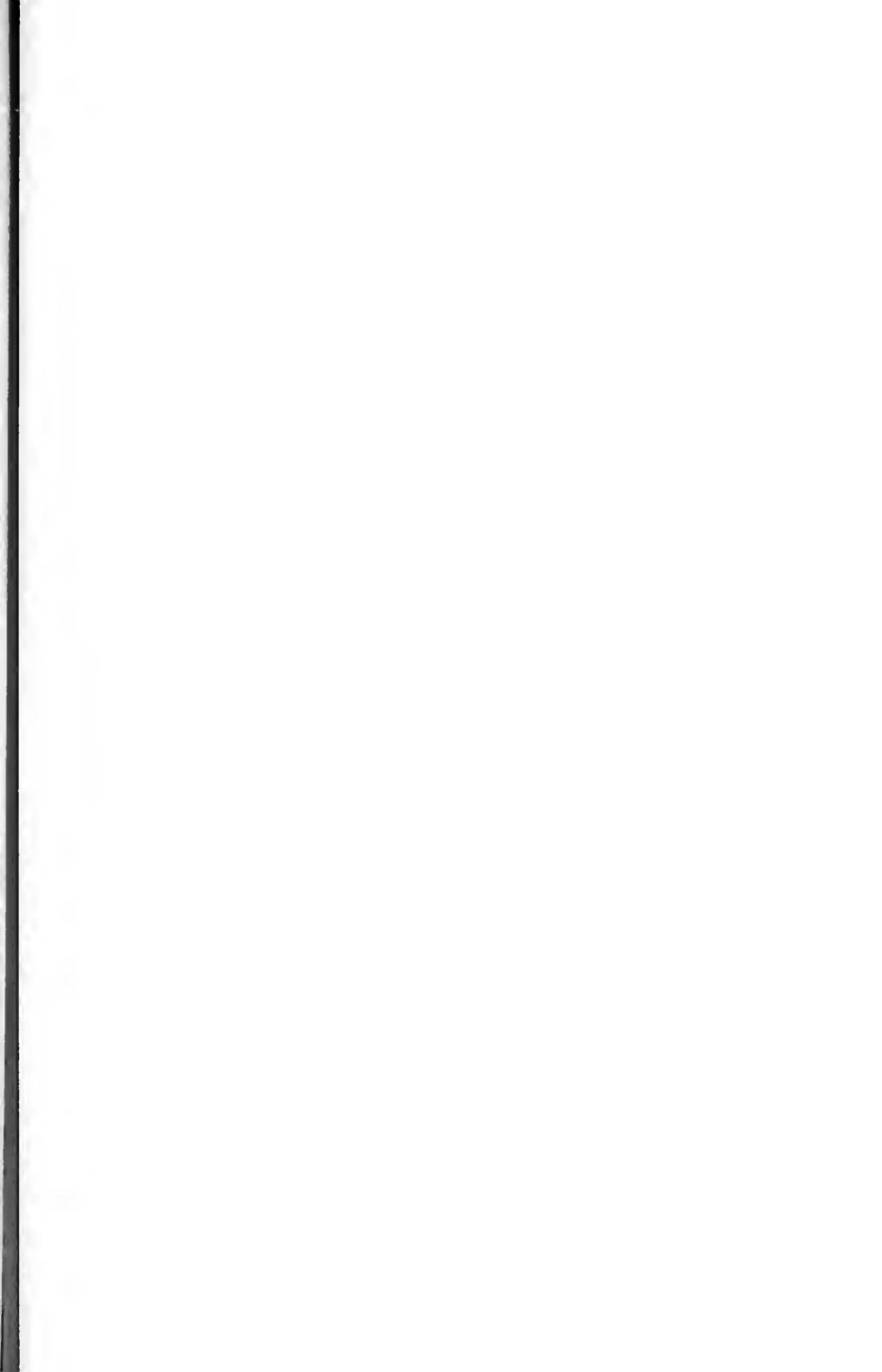
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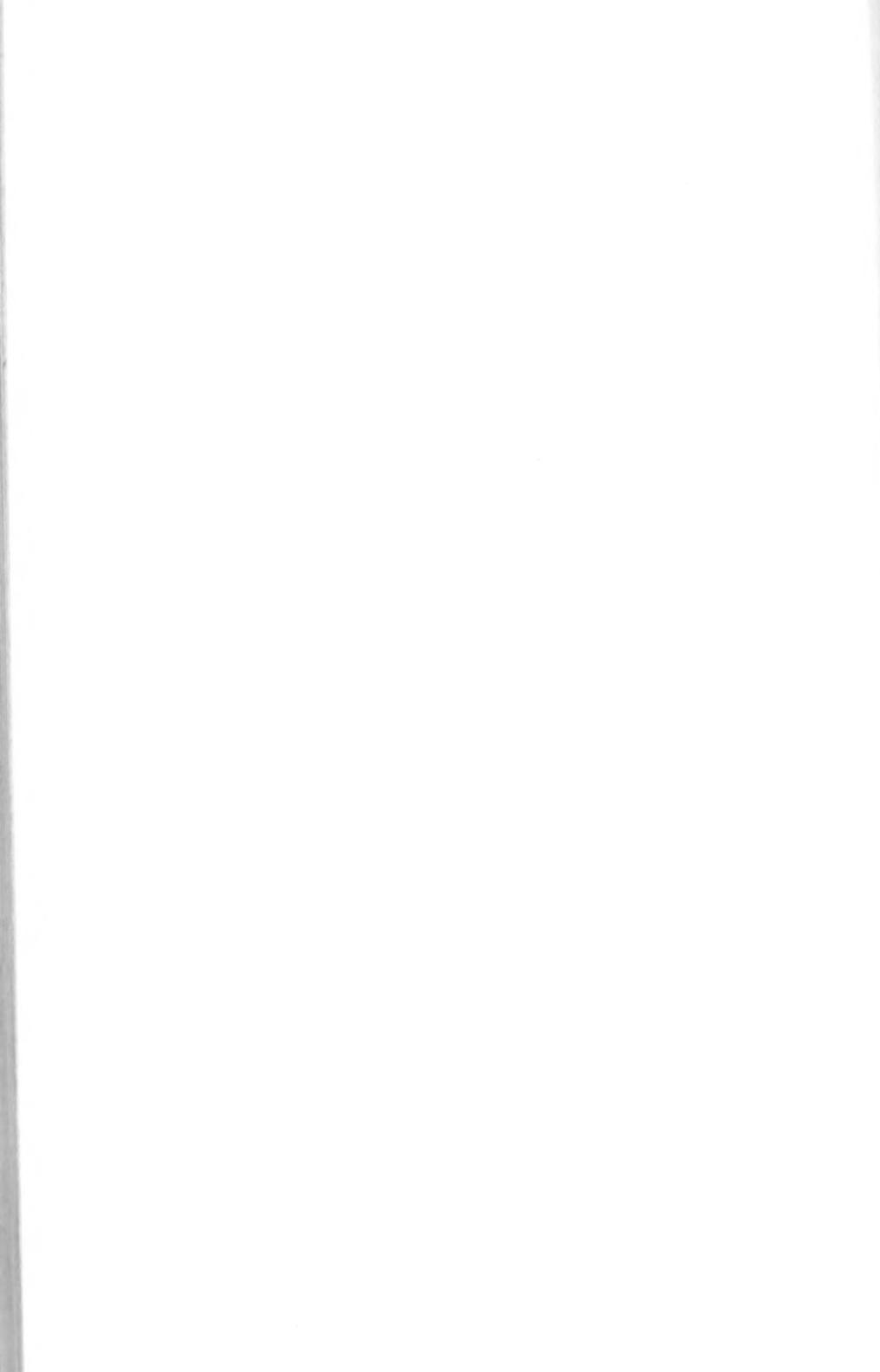
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